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DISSERTATION
ON

A CLINICAL, CYTOLOGICAL, HISTOMORPHOLOGICAL EVALUATION OF LYMPHNODES IN CHILDREN

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THANJAVUR

CERTIFICATE

This is to certify that this dissertation entitled ***"A CLINICAL, CYTOLOGICAL, HISTOMORPHOLOGICAL EVALUATION OF LYMPHNODES IN CHILDREN"*** is the bonafide record work done by **Dr. V. BAGIYALAKSHMI**, submitted as partial fulfillment for the requirements of M.D. Degree Examinations, Pathology to be held in September 2006.

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CONTENTS

		Page No.
1.	INTRODUCTION	1
2.	AIM OF THE STUDY	4
3.	MATERIALS AND METHODS	5
4.	REVIEW OF LITERATURE	8
5.	OBSERVATION AND RESULTS	41
6.	DISCUSSION AND CONCLUSION	51

APPENDIX

BIBLIOGRAPHY

MASTER CHART

INTRODUCTION

INTRODUCTION

Lymph node enlargement is a common feature of a variety of benign and malignant disorder that affects children.

In children frequently we encounter enlarged lymph node, this is because the immune system of a child is constantly being exposed to antigens that has not been encountered before. Most of the children under twelve years of age had lymph node enlargement. [11] Majority of peripheral lymphadenopathy encountered (85% to 87%)[64] in children are benign in nature and self-limiting. Whenever the issue of malignancy is raised or a child does not respond to treatment, morphological analysis of lymph node is inevitable. In persistent or suspicious lymphadenopathy there is a need for rapid, simple and accurate diagnostic tool. The diagnosis of lymphadenopathies with Fine Needle Aspiration Cytology has proven to be safe, minimally invasive, cost effective and reliable diagnostic tool. Fine Needle Aspiration Cytology has become an integral part of the initial diagnosis and management of patients presenting with lymphadenopathy.

This simple technique has recently gained wide acceptance since it offers a high degree of accuracy lending itself to outpatient diagnosis and thus making considerable saving in the cost of hospitalization.

Primary tumour of the lymphatic tissue account for 3 – 5% of total cancer cases and lymph node are a common site of metastasis for different cancer. Thus clinical recognition and urgent diagnosis of palpable lymphadenopathy by Fine Needle Aspiration Cytology is of great importance.

The role of cytology in the diagnosis of lymphoma has subsequently become more clearly defined; it is to confirm a clinical suspicion of lymphoma or to exclude it with the highest possible confidence. A cytological diagnosis of NHL is confirmed by open biopsy and histological examination – especially to study the growth pattern and by immune marker studies necessary for definite diagnosis and sub typing.

The cytology and histomorphological correlation in a proportion of cases is done to assess the sensitivity of the Fine Needle Aspiration Cytology. False positive and false negative results were compared with other studies and literature.

The ever increasing number of commercially produced monoclonal antibodies to various antigens, specific to different cell lines is proving very useful in lymph node cytology. In particular, it assists the pathologist in the identification of the source of tumour metastasis to lymph nodes and in the distinction between undifferentiated carcinoma, malignant melanoma and malignant lymphoma.

In this study, all cases of Non Hodgkin Lymphomas and three doubtful cases were subjected to Immunohistochemistry for confirmation and further sub classification.

AIM OF THE STUDY

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1. To evaluate the epidemiology and etiopathogenesis of lymphadenopathy in children in semi urban areas.

2. To study the value of Fine Needle Aspiration Cytology in persistent or suspicious peripheral lymphadenopathy.

3. To study the incidence of inflammatory and neoplastic lymphadenopathy.

4. Cyto-histomorphological correlation of lymph node aspirates and biopsies and evaluation of areas of pitfalls in Fine Needle Aspiration.

5. The role of special stains and Immunohistochemistry in confirmation and sub classification of lymphoma.

MATERIALS AND METHODS

MATERIALS AND METHODS

Children of either sex, below twelve years of age who were referred from Raja Mirasdhar Hospital, which is affiliated to Thanjavur Medical College, Thanjavur during the Two and Half years period from January 2003 to August 2005 presented with lymphnode enlargement were included in the study.

A thorough clinical evaluation, blood count, haematological survey and routine urine examination (to rule out infection) were done in each case.

A detailed history with particular attention to socio-economic status, similar complaints in other family members and history of bacterial/viral infections were also recorded.

FINE NEEDLE ASPIRATION:

As an initial step, the anatomical site, size, number and consistency of the lymphnode were evaluated.

Irrespective of the size of the lymphnode Fine Needle Aspiration was performed with 5cc disposable syringe attached with 22G needle in all cases.

In generalized lymphadenopathy, cervical lymphnode of greater in diameter were given priority followed by axillary lymphnodes. Single aspirate from nodes of less than 0.5 X 0.5 cm size and multiple aspirates from larger nodes (more than 1.0 X 1.0 cm) was performed for evaluation.

The smears were fixed immediately in isopropyl alcohol and stained with hematoxylin and eosin (APP-I) as per the guide lines recommended by ORELL. Air dried smears were also taken and stained with May Grunwald –Giemsa(APP-IV) stain for evaluation.

In all cases of caseous necrosis,acid-fast staining was performed to identify the tubercle bacilli(APP-VI).

HISTOLOGIC STUDY OF BIOPSY SPECIMENS:

The lymphnode biopsy specimens that were fixed in 10% neutral buffered formalin were processed routinely for paraffin embedding. All the specimens were submitted in toto. 5μm sections were cut. The sections were stained with H & E for evaluation of histopathological features.

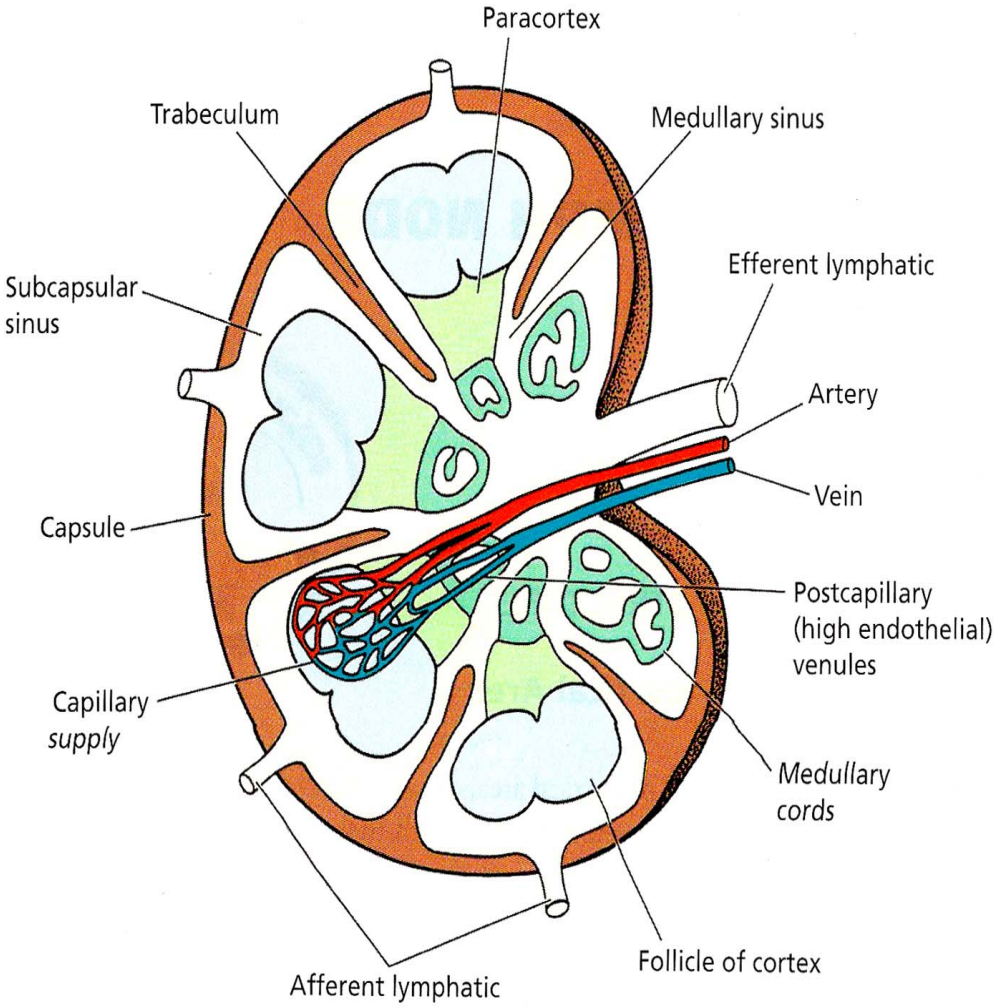
In suspected cases of lymphoma, histochemical staining with reticulin (APP-III) and PAS (APP-II) were also performed to analyse effacement of architecture and obliteration of reticulin network.

All cases of lymphoma were further confirmed and subclassified with the help of Immunohistochemistry (PAN – B and PAN – T) markers (APP – V) and the appearance of each slide was matched with standard lymphoma panel that resembles it most closely.

In addition the recent literature regarding epidemiology, clinical features, cytomorphology and pathology of lymphnode is reviewed.

REVIEW OF LITERATURE

THE STRUCTURE OF THE LYMPH NODE



REVIEW OF LITERATURE

Lymph nodes are considered to be the fortress that aid immunological defence. They are located throughout the body and are a part of the lymphatic system. They are divided as cervical lymph node, Axillary lymph node, Popliteal lymph node, inguinal lymph node, Thoracic lymph node, lymphoid tissue of payers patches, Intestinal lymph node and Mesentric Lymph node.

DEVELOPMENT OF LYMPHATIC SYSTEM:

By the sixth week of development thymus is formed from the third pharyngeal pouch. By seventh week lymphatic sacs are formed adjacent to the blood vessels. By eight weeks the lymphocytes cluster within developing lymphatic sac. Small blood vessels grow into it and the internal organisation of the lymph node gradually appears.

GROSS APPEARANCE:

The normal lymph nodes are round to ovoid encapsulated structure. It is usually 2 – 3 mm to 1cm in size. Cut surface is normally soft and homogenous gray-pink. [15]

MICRO ARCHITECTURE: [15]

Lymph nodes are surrounded by a connective tissue capsule with trabeculae, which extends into the substance of the node and provide a framework for the contained cellular elements. Beneath the capsule is a slit like space, the subcapsular sinus, into which the afferent lymphatics drain after penetrating the capsule. Lymph from the subcapsular sinus passes via the medullary cords to the hilum of the lymph node from which afferent lymphatic drains.

Three distinct microanatomical regions can be recognised within the normal lymph nodes, these regions are

- Cortex
- Para Cortex
- Medulla

Cortex:

It contains nodules of B-lymphocytes either as primary follicles or as germinal centres. The primary lymphoid follicles are round nodules, averaging 1mm in diameter. The longer axis of each is oriented at a right angle to the lymph node capsule.

The secondary or reactive lymphoid follicles comprise a peripheral area or mantle of closely packed small lymphocytes and a centrally located germinal centre.

The germinal centre include a population of lymphoid cells in various stages of maturation, supportive reticulum cells, dendritic reticulum cells and histocytes. The germinal centres, vary in size enlarging substantially under conditions of antigenic stimulation.

The primary follicles are composed of small darkly staining inactive lymphocytes. They become secondary follicles when stimulated by antigens and contain well-developed germinal centre composed of pale staining heterogeneous population of cells. These include B-lymphocytes small and large, cleaved and non-cleaved lymphocytes. The lymphocyte of the mantle zone are all of the B cell type. The outer layer of the mantle zone are less tightly packed and have more cytoplasm forming the marginal zone.

Para cortex:

The paracortical areas or deep cortex is the densely cellular area beneath the cortex that extends between lymphoid follicle forming regular interdigitations from the capsule to the corticomedullary junction. The cortex contains predominantly T lymphocytes. The activated T lymphocytes change into immunoblast and undergo active proliferation. The para cortex contains interdigitating cells (IDC) or antigen presenting cells.

Medulla:

The medulla or the medullary cords contain sinuses, which drain into the hilum. Lymph enters the marginal sinus of the node and drains to the hilum through sinuses, which converge in the medullary region. The sinuses are lined by macrophages, which phagocytose particulate material within the lymph. Between the sinuses in the medulla lie the medullary cords which contain numerous plasma cells and are one of the main sites of antibody secretions within the lymph node.

THE CELLS OF THE LYMPH NODE:

Lymph node Cells:

The lymph node parenchyma includes different population of lymphoid cells in various stages of differentiation and activation lying on or moving through the supporting framework of stroma. They comprise a population of B cells, T cells and plasma cells with multiple subpopulations, Accessory cells, Dentritic reticular cells and histiocytes.

Lymphatic Sinuses:

Lymphatic sinuses carry the lymph from afferent lymphatics on the convex surface of the lymph node through the lymphoid parenchyma into the efferent lymphatics in the lymph nodes hilus.

They vary in size and composition according to functional demands. They are passages through the fine network of reticulum fibres lined by endothelial cells (retothelial or littoral cells) interconnected by desmosomes. The system of sinuses includes the marginal or subcapsular sinus, the labryinthic medullary sinus, the intermediary or cortical sinuses which are narrow sinuses connecting the first two types. The passage of lymph and cells from one chain of lymph node to the next is a means by which the immune response is converged from the peripheral to the more central lymph node.

Blood vessels:

The blood supply, which is also the main route of incoming lymphocyte, is brought into the lymph node by one or more arterioles. They enter the node through the hilus and divide into branches in the medulla ramifying further into capillary network in the cortex and para cortex. The blood vessels are structurally similar to those of other organs, with the exception of the post capillary venules of the para cortical areas. These vessels are lined by tall endothelial cells that are tightly bound together by close interdigitation. The endothelial cells bears specialised lymphocyte homing receptor, that are recognised by circulating lymphocytes, which can pass through the cytoplasm of these endothelial cells.

Supporting Frame Work Or Stroma:

The lymphnode capsule, trabeculae, and a network of reticulin cells and reticulin fibres comprise the supporting framework or stroma. Fibroblast are the predominant cells of the capsule and trabeculae. They contain smooth muscle cells and nerves with schwann cells and blood vessels with pericytes. The reticulin fibres are thin delicate fibrils of type III collagen about 20nm in diameter. In lymph nodes they form the main extra cellular matrix and maintain the structure by linkage to fibrous trabeculae and they are reinforced by fine collagen.

FUNCTION:

The major function of the lymphnodes are lymphopoiesis, filtration of lymph and processing of antigens. The immune response takes place in a integrated lymphoid system that includes the lymphnodes, spleen and mucosa associated lymphoid tissue.

LYMPHOID LESION:

Majority of peripheral lymphadenopathy encountered in children are benign, self-limiting (85-87%). [64]

CLASSIFICATION OF LYMPHOID LESION:

BENIGN CAUSES OF LYMPH NODE ENLARGEMENT [42]

Nodular / follicular proliferations

Nonspecific germinal centre hyperplasia[a]

Rheumatoid arthritis-related lymphadenopathy

Lupus lymphadenitis

HIV-related generalized lymphadenopathy[a]

Angiofollicular lymph node hyperplasia

Progressive transformation of germinal centres[a]

Luetic lymphadenitis

Toxoplasma lymphadenopathy[a]

Diffuse and paracortical proliferations

Postvaccinial lymphadenopathy

Acute infections mononucleosis[a]

Non-EBV-related viral lymphadeopathy

Drug hypersensitivity lymphadeopathy

Kimura's disease

Autoimmune lymphoproliferative disorder (fas mutation)[a]

Sinusoidal proliferations

Sinus histiocytosis[a]

Foreign material accumulations

Storage disorders[a]

Hemophagocytic lymphohistiocytosis[a]

Sinus histiocytosis with massive lymphadenopathy[a]

Dermatopathic lymphadenopathy[a]

Whipple's disease

Granulomatous proliferations

Sarcoidosis

Granulomatous disease of chilhood[a]

Nodal Crohn disease

Mycobacterial infection[a]

Histoplasma infections[a]

Necrotizing proliferations

Kikuchi-Fujimoto disease

Cat-scratch lymphnadenitis[a]

Lymphogranuloma venereum

Acute bacterial lymphadenitis[a]

Acute viral lymphadenitis[a]

Kawaski syndrome[a]

[a] - Seen frequently in children and adolescent

II CLASSIFICATION OF MALIGNANT CONDITION – LYMPHOMAS:

- Hodgkin lymphoma – REAL/WHO [68]
    - Nodular Lymphocyte predominance – Hodgkin lymphoma
    - Classical – Lymphocyte rich

      Mixed cellularity

      Nodular sclerosis

      Lymphocyte depletion

- NON HODGKINS LYMPHOMA [12]

NHL Classification

REAL WHO Classification (2000)	Updated Kiel Classification	Working Formulation
Precursor cell lymphoma Lymphoblastic lymphoma, T Cell B Cell	T-Lymphoblastic B-Lymphoblastic	Lymphoblastic
Peripheral B-cell neoplasm B-CLL/SLL	B-Lymphocytic, CLL type Lymphoplasmacytoid immunocytoma	Small lymphocytic, CLL Small lymphocytic, plasmacytoid
B-Prolymphocytic leukemia	B-lymphocytic, prolymphocytic leukemia	-
Lymphoplasmacytic lymphoma	Lymphoplasmacytic immunocytoma	Small lymphocytic plasmacytoid Diffuse, mixed small and large cell

REAL WHO Classification (2000)	Updated Kiel Classification	Working Formulation
Mantle cell lymphoma	Centrocytic	Diffuse small cleaved cell
	Centroblastic, centrocytoid subtype	Follicular, predominantly small cleaved cell Diffuse mixed small and large cell Diffuse large cleaved cell
Follicular lymphoma	Centroblastic-centrocytic lymphoma,	Follicular, predominantly small cleaved cell
	Follicular and /or diffuse	Follicular, mixed small and large cell
	Centroblastic, follicular	Follicular, predominantly large cell
Extranodal marginal zone B-cell Lymphoma of MALT type	-	Small lymphocytic
	-	Diffuse small cleaved cell Diffuse mixed small and large cell
Nodal marginal zone B-cell lymphoma	Monocytoid, including marginal zone cell Immunocytoma	Small lymphocytic
		Diffuse small cleaved cell Diffuse mixed small and large cell Unclassifiable
Splenic marginal zone B-cell lymphoma	-	Small lymphocytic Diffuse small cleaved cell
Hairy cell leukemia	Hairy cell leukemia	-
Diffuse large B-cell lymphoma	Centroblastic	Diffuse, large cell
	B-immunoblastic	Large cell immunoblastic
	B-large cell anaplastic, Ki-1+	Diffuse mixed small and large cell Small non-cleaved cell, non-Burkitt

REAL WHO Classification (2000)	Updated Kiel Classification	Working Formulation
Burkitt's lymphoma (including Burkitt-like lymphoma)	Burkitt's lymphoma	Small non-cleaved cell, Burkitt's
Plasmacytoma/plasma cell myeloma	Plasmacytic	Extramedullary plasmacytoma
Peripheral T –and NK – cell neoplasmas T-Prolymphocytic leukemia	T-lymphocytic, CLL type T-lymphocytic, prolymphocytic	Small lymphocytic Diffuse small cleaved cell
T-Cell granular lymphocytic leukemia	T-lymphocytic, CLL type	Small lymphocytic Diffuse small cleaved cell
Mycosis fungoides / Sezary syndrome	Small cell cerebriform (mycosis fungoides sezary syndrome)	Mycosis fungoides
Peripheral T-Cell lymphoma unspecified	T-zone	Diffuse small cleaved cell
	Lymphoepithelioid T-cell	Diffuse mixed small and large cell
	Pleomorphic T-cell, small cell	Diffuse large cell
	Pleomorphic T-cell, medium-sized and large cell	Large cell immunoblastic
	T-immunoblastic	
Angioimmunoblastic T-cell lymphoma	Angioimmunoblastic T-cell	Diffuse mixed small and large cell Diffuse large cell Large cell immunoblastic
Extranodal NK/T-cell lymphoma, nasal and nasal-type	-	Diffuse small cleaved cell Diffuse mixed small and large cell Diffuse large cell Large cell immunoblastic

REAL WHO Classification (2000)	Updated Kiel Classification	Working Formulation
Aggressive NK-cell leukemia	-	-
Enteropathy-type T-cell lymphoma	-	Diffuse small cleaved cell Diffuse mixed small and large cell Diffuse large cell Large cell immunoblastic
Hepatosplenic γ δ T-cell lymphoma	-	Small lymphocytic Diffuse small cleaved cell
Subcutaneous panniculitis-like T-cell Lymphoma	-	Diffuse small cleaved cell Diffuse mixed small and large cell Diffuse large cell Large cell immunoblastic
Anaplastic large cell lymphoma, T/null Cell,primary systemic type	T-large cell anaplastic, Ki-1+	Large cell immunoblastic Diffuse large cell
Anaplastic large cell lymphoma, T/null Cell, primary cutaneous type	T-large cell anaplastic, Ki-1+	Large cell immunoblastic Diffuse large cell
Adult T-cell lymphoma/leukemia (HTLV-1+)	Pleomorphic T-cell, small cell Pleomorphic T-cell, medium-sized and large cell	Diffuse small cleaved cell Diffuse mixed small and large cell Diffuse large cell Large cell immunoblastic

Although elaborate classification of NHL have been developed they have little application in paediatric diseases. Most cases of NHL in children are high-grade diffuse neoplasms. [36]

THREE HISTOLOGICAL SUBTYPES THAT ARE RECOGNIZED COMMONLY IN CHILDREN ARE

- Lymphoblastic, usually of T cell origin.
- Small Non-Cleaved Cell Lymphoma (SNCCL), with burkitt and non-burkitt subtypes and of B cell origin.
- Large Cell Lymphoma (LCL), with diffuse and anaplastic subtype and of T, B or intermediate cell origin.

The diagnosis and classification of childhood NHL requires considerable hematopathological expertize and adequate diagnostic modality in both fresh and frozen section.

DIAGNOSTIC EVALUATION OF LYMPHNODE [59]

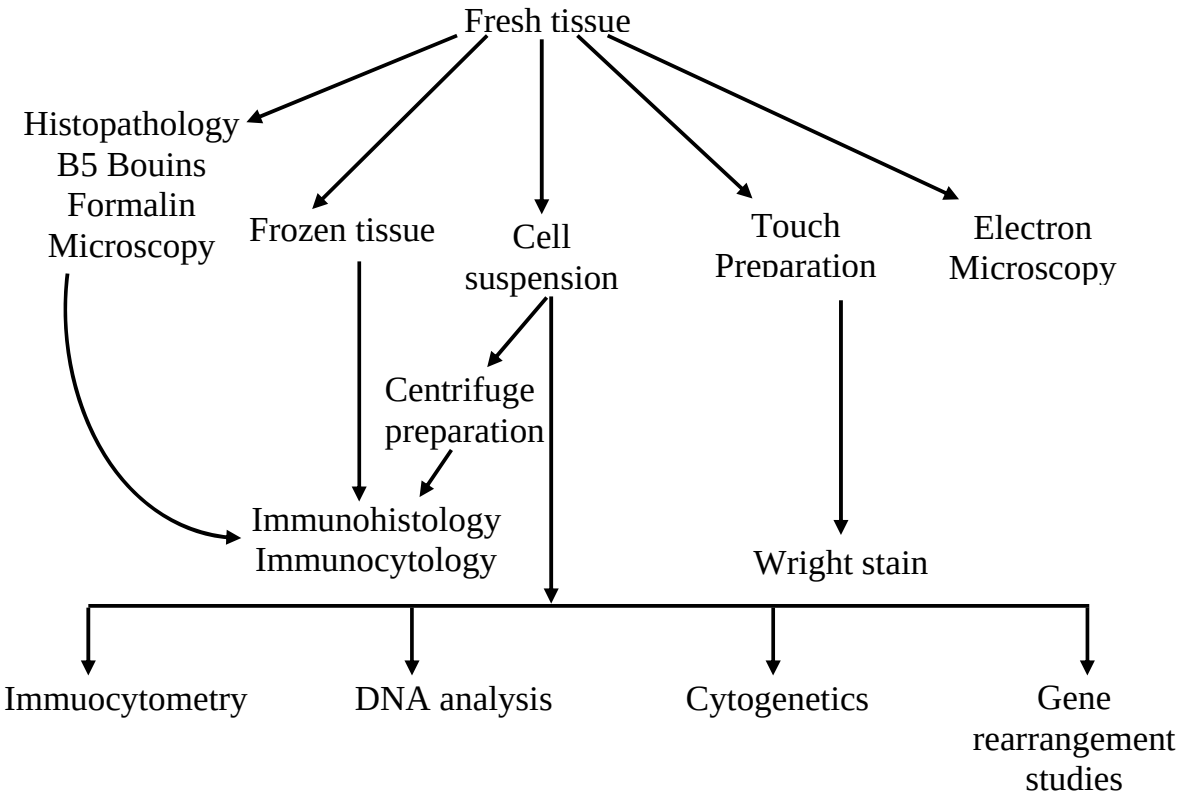
FNAC of lymphnodes has been practical in central Europe and in scandinavian for many years particularly by haematologists in conjunction with spleen. Martin and Ellies of Memorial hospital in New York were pioneers in this field and their work was later followed Betsill and Hadju.

The place of FNA in the investigation of lymphnode is important for many reasons, it helps.

- To decide whether surgical excision for histological examination is indicated or not.
- To diagnose whether the lymphadenopathy is due to reactive hyperplasia, metastatic malignancy or malignant lymphoma.
- It is a safe and quick procedure with few complications
- It decreases the overall cost of care mainly by eliminating unnecessary surgeries.

LYMPHNODE BIOPSY: [15]

Open biopsy is done in the suspicious cases of malignancy when a open biopsy is done the processing protocol.



TOUCH IMPRINTS:

Lymphnode touch imprints are suitable for analysis of immunophenotype, morphometry and DNA ploidy.

IMMUNOCYTOCHEMISTRY:

It can be easily applied to FNAB specimen to distinguish between reactive lymphoid hyperplasia and low-grade lymphoma and to improve lymphoma sub typing. The whole range of monoclonal antibody commonly used against the various lymphoid cell marker in tissue section can be applied with comparative results on the cytospin preparations.

MOLECULAR DIAGNOSIS:

Clonality of the lymphnode aspirate can be determined by several molecular technique. Southern blot and polymerase chain reaction assays detect immunoglobulin heavy chain gene rearrangement from extracted DNA and in situ hybridization detects immunoglobulin light chain messenger RNA on cytospin.

ELECTRON MICROSCOPY:

The ultrastructural examination is used to enhance the diagnosis of less common disorders such as mycosis fungoides, granulocytic sarcoma, and lymphoblastic lymphoma. It is also useful in the diagnosis of metastatic melanoma and Ewing’s sarcoma.

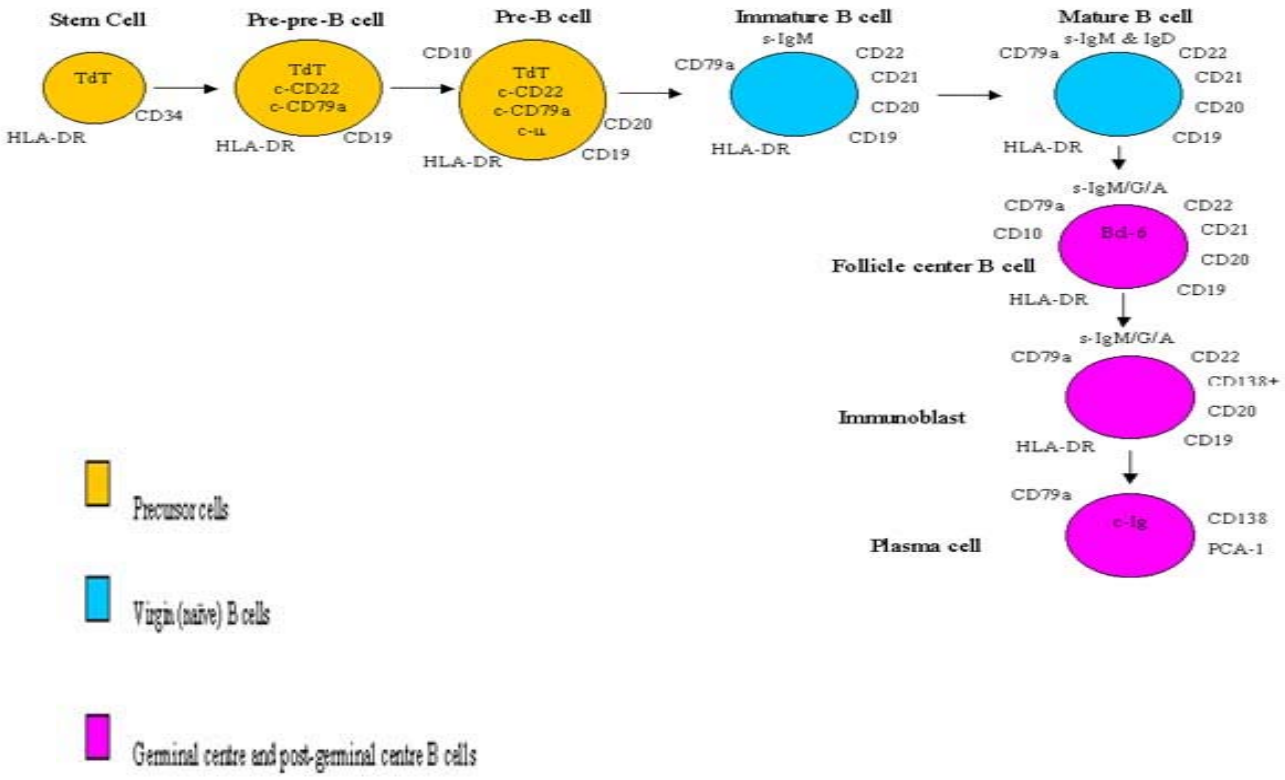
IMMUNOHISTOCHEMISTRY:

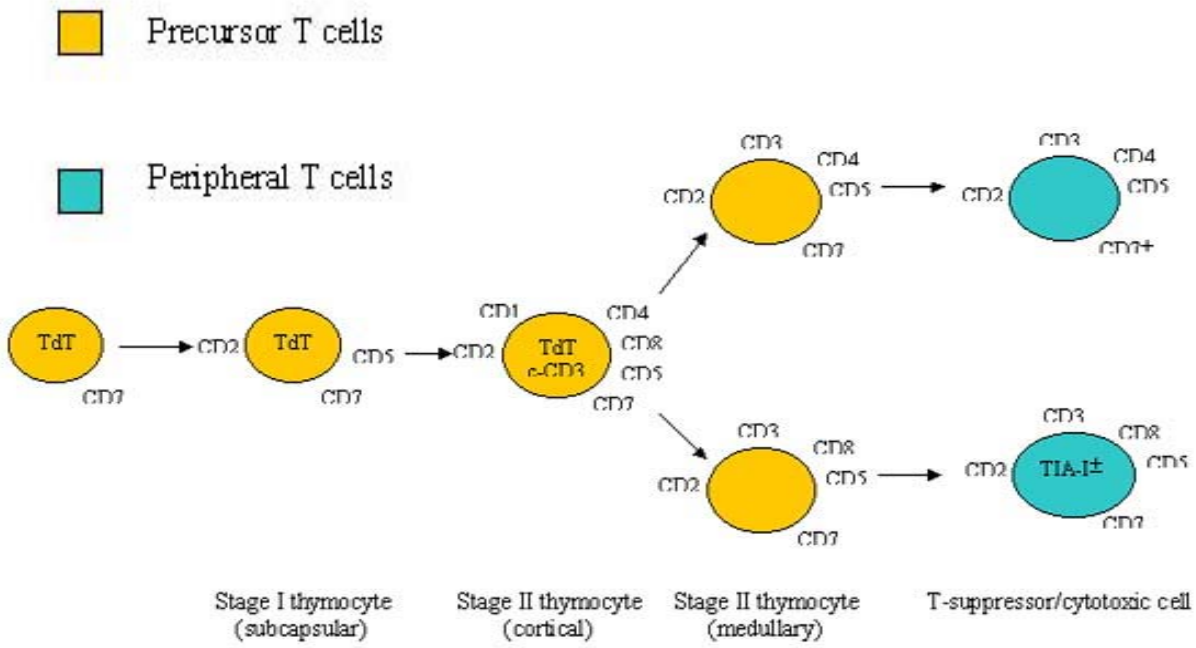
Diagnostic Immunohistochemistry relies on a large collection of monoclonal antibodies that bind to surface molecules involved in communication, adhesion or signaling on B cells, T cells, histiocytes and their subsets. It is useful in the confirmation and sub classification of lymphomas.

Commonly used **antibodies** in immunoperoxidase procedures in paraffin embedded tissue section are

- Pan leukocyte Markers — CD45
- B-cell Markers — CD10
  CD20
  CD21
  CD23
  CD45RA
  CD79
  Anti Ig heavy + light chains
- T cell Markers — CD1a
  CD2
  CD3
  CD4
  CD5

	CD7
	CD43
	CD45 RO
	CD57
▪ Hodgkin related	CD15
	CD30
▪ Progenitor cell	CD34
▪ NK cell	CD56
▪ Macrophage granulocytes	CD68
▪ Langerhan cells	S100
▪ Proliferating cell	Ki-67
▪ Precursor marrow cell Cortical thymocyte	Tdt


Stem Cell
TdT
CD34
HLA-DR
Pre-pre-B cell
TdT
c-CD22
c-CD79a
HLA-DR
CD19
Pre-B cell
CD10
TdT
c-CD22
c-CD79a
c-µ
CD20
HLA-DR
CD19
Immature B cell
s-IgM
CD79a
CD22
CD21
CD20
HLA-DR
CD19
Mature B cell
s-IgM & IgD
CD79a
CD22
CD21
CD20
HLA-DR
CD19
s-IgM/G/A
CD79a
CD22
CD10
Bcl-6
CD21
CD20
Follicle center B cell
HLA-DR
CD19
s-IgM/G/A
CD79a
CD22
CD138+
CD20
Immunoblast
HLA-DR
CD19
CD79a
c-Ig
CD138
Plasma cell
PCA-1
Precursor cells
Virgin (naïve) B cells
Germinal centre and post-germinal centre B cells


Precursor T cells
Peripheral T cells
TdT
CD7
CD2
TdT
CD5
CD7
CD1
CD2
TdT
c-CD3
CD4
CD8
CD5
CD7
CD3
CD4
CD2
CD5
CD7
CD3
CD4
CD2
CD5
CD3+
CD3
CD8
CD2
CD5
CD7
CD3
CD8
CD2
TIA-1±
CD5
CD7
Stage I thymocyte (subcapsular)
Stage II thymocyte (cortical)
Stage II thymocyte (medullary)
T-suppressor/cytotoxic cell

Algorithm for the evaluation of apt patient with lymphadenopathy [53]

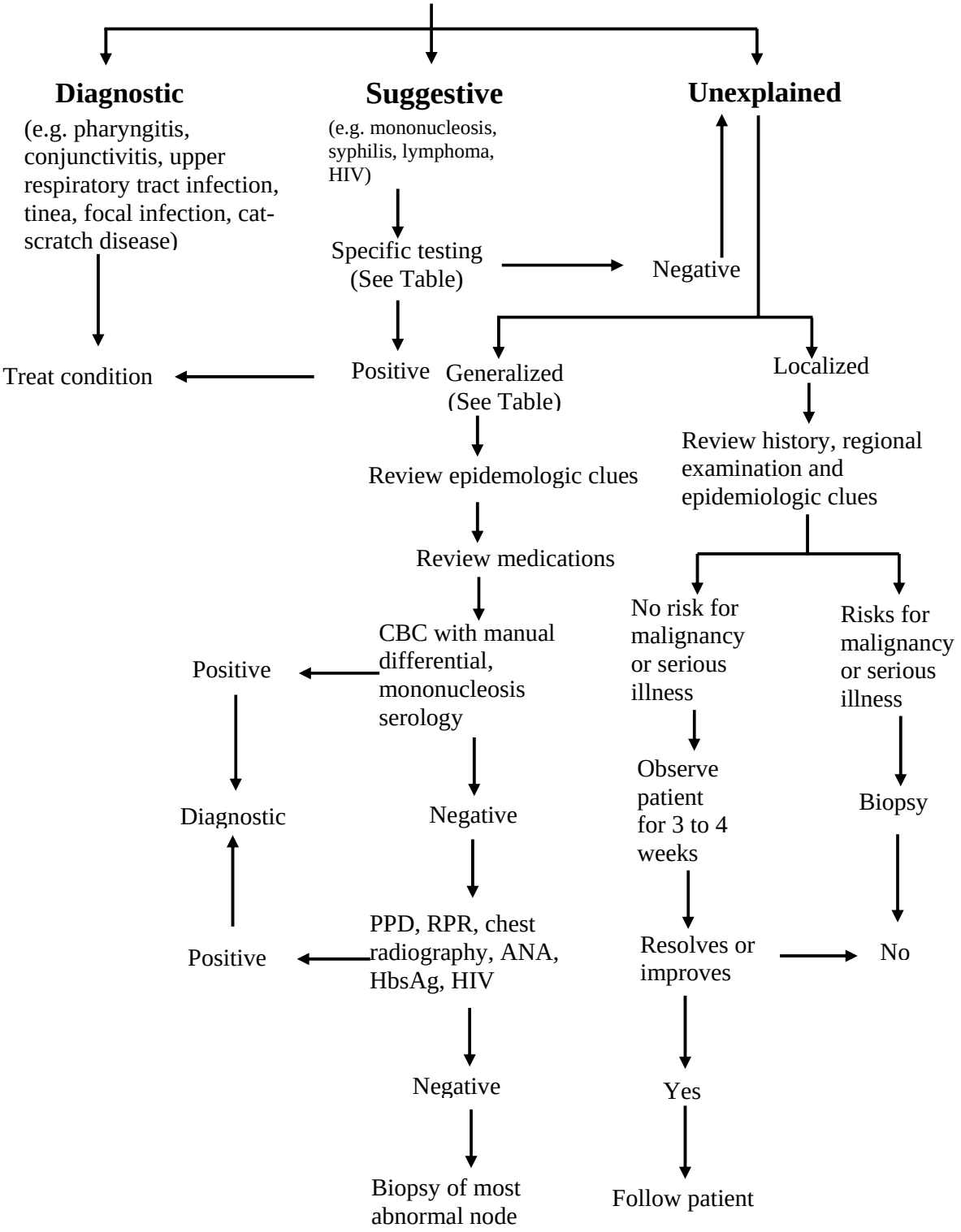


TABLE:

Disorder	Associated findings	Test
Mononucleosis-type Syndromes	Fatigue, malaise, fever atypical Lymphocytosis	
Epstein-Barr virus*	Splenomegaly in 50% of Patients	Monospot, IgM EA or VCA
Toxoplasmosis*	80 to 90% of patients are asymptomatic	IgM toxoplasma antibody
Cytomegalovirus*	Often mild symptoms; patients may have Hepatitis	IgM CMV antibody, viral culture of urine or blood
Initial stages of HIV Infection*	"Flu-like" illness, rash	HIV antibody
Cat-scratch disease	Fever in one third of patients; Cervical or axillary nodes	Usually clinical criteria; Biopsy if necessary
Pharyngitis due to group A streptococcus, gonococcus	Fever, Pharyngeal exudates, cervical nodes	Throat culture on appropriate medium
Tuberculous lymphadenitis*	Painless, matted cervical nodes	PPD, biopsy
Secondary syphilis*	Rash	RPR
Hepatitis B*	Fever, nausea, vomiting, icterus	Liver function tests, HB_s Ag
Lymphogranuloma venerum	Tender, matted inguinal nodes	Serology
Chancroid	Painful ulcer, painful inguinal nodes	Clinical criteria, culture
Lupus erythematosus*	Arthrtis, rash, serositis, renal, neurologic, Heamatologic disorders	Clinical criteria, antinuclear Antibodies, complement levels
Rheumatoid arthritis*	Arthritis	Clinical criteria, rheumatoid factor
Lymphoma*	Fever, night sweats, weight loss in 20 to 30% of patients	Biopsy

Disorder	Associated findings	Test
Leukemia *	Blood dyscrasias, bruising	Blood smear, bone, marrow
Serum sickness*	Fever, malaise, arthralgia, urticaria; exposure to Antisera or medications	Clinical criteria Complement assays
Sarcoidosis	Hilar nodes, skin lesions, dyspnea	Biopsy
Kawasaki disease*	Fever, conjunctivitis, rash, mucous Membrane lesions	Clinical criteria

Less common causes of lymphadenopathy:

Disorder	Associated findings	Test
Lyme disease*	Rash, arthritis	IgM serology
Measles*	Fever, conjunctivitis, rash	Clinical criteria serology
Rubella*	Rash	Clinical criteria, serology
Tularemiala*	Fever, ulcer at inoculation site	Blood culture, serology
Brucellosis*	Fever, sweats, malaise	Blood culture, serology
Plague	Febrile, acutely, ill with cluster Of tender nodes	Blood culture, serology
Typhoid fever*	Fever, chills, headache, abdominal Complaints	Blood culture, serology
Still's disease*	Fever, rash, arthritis	Clinical criteria, antinuclear Antibody, rheumatoid factor
Dermatomyositis*	Proximal weakness, skin changes	Muscle enzymes, EMG, muscle biopsy
Amyloidosis*	Fatigue, weight loss	Biopsy

*--Causes of generalized lymphadenopathy

EA= early antibody; VCA = viral capsid antigen; CMV = cytomegalovirus; HIV = human immunodeficiency virus; PPD = purfied protein derivative; RPR = rapid plasma regain; HB_s Ag = hepatitis B surface antigen; EMG = electromyelography.

Cytological and Histopathological appearances of various lymphoid lesions:

1. Reactive lymphadenitis:

Gross – Lymphnode size is less than 1-cm diameter. Cut surface is soft and pinkish. [12,15]

HPE:-

In follicular hyperplasia there are large round B cell rich germinal centre surrounded by a collar of naïve B-lymphocytes. The mantle zone and germinal centre are sharply demarcated. Within the germinal centre there is a dark zone consisting of centrocyte and Tingible body macrophages.

In paracortical lymphoid hyperplasia activated T cells (immunoblast) are seen with in the interfollicular region. They are 3 - 4 times the size of the resting lymphocytes with round nuclei open chromatin several prominent nucleoli and moderate amount of pale cytoplasm.

In sinus histocytosis there is a prominence of lymphatic sinusoids containing hypertrophied endothelial cells and increased macrophages.

FNAC smear shows:

- A mixed population of lymphoid cells.
- A predominance of small lymphocytes.
- Centroblast, Centrocytes, immunoblast and plasma cells in variable but logical proportions.
- Dendritic reticulum cells associated with centroblasts and centrocytes.
- Scattered histocytes with in intracytoplasmic nuclear debris.
- Pale histocytes, interdigitating cells, endothelial cells, eosinophils & neutrophils.

Problems in diagnosis

- Follicular hyperplasia with large germinal centre with large cells may be mistaken for malignant lymphoma.
- Differential diagnosis between prominent follicular hyperplasia and follicular lymphoma.
- Paracortical hyperplasia with prominent immunoblastic cells and plasma cell reaction can mimic T immunoblastic lymphoma and Hodgkin’s disease.

Granulomatous lymphadenitis

The most common cause of granulomatous lymphadenitis is mycobacterium tuberculosis. The lymphnodes are involved in primary tuberculosis as TB bacilli disseminate from the initial focus of infection in lungs through the lymphatics to the tributary lymphnodes.

Gross:

They are matted with large areas of necrosis. On cut section the caseous necrotic areas appear as creamy white patches becoming chalky with deposition of calcium.

Histopathology:

The lymphnode parenchyma is partially involved showing multiple granulomas formed of epitheloid cells Langhan's giant cells, surrounded by lymphocytes, plasma cells and fibroblast. The caseous necrosis characteristic of TB is coagulative. Sometime total necrosis of the node occurs that leaves no cellular trace or nuclear debris. The identification of beaded rod shaped, bacillus by a special acid fast staining Ziehl Neelson staining is necessary for positive diagnosis.

FNAC

- Histocytes of epithelioid type forming cohesive clusters.
- Multinucleated giant cells of Langhan's type.

Problems in diagnosis:

- Tumour necrosis.

  If an aspirate consists of necrotic material with no well preserved cells. It may be difficult to decide whether it represents caseous necrosis or tumour necrosis.

- Other cell types resembling epithelioid cells (e.g.) endothelial cells.
- Granuloma in malignant lymphoma and in nodes regional to carcinoma.

Kimura's lymphadenopathy [14,15,62]

It is a chronic inflammatory disorder prevalent in Asians. It involves subcutaneous tissue and lymphnodes and is charaterised by angiolymphoid proliferation and eosinophilia. It is located deep in the subcutaneous tissue and in almost all cases involves the regional lymphnodes.

HPE:

The lymphnodes are enlarged and adherent to one another. They show markedly hyperplastic follicles with reactive germinal centre and a well-defined peripheral mantle. Diffuse eosinophilia, eosinophilic microabscess and infiltration of germinal centre. Polykaryocytes of Warthein Finkeldey (WF) type characterized by overlapping grape like arrangement of nuclei is common.

FNAC

Dissociated and clustered endothelial cells, eosinophils, lymphocytes and W-F giant cells are present.

FILARIAL LYMPHADENITIS [15]

Lymphadenitis caused by infection with filarial parasite. The adult filarial worm colonize lymphatic vessels and lymph node.

HPE:

The lymphatic spaces containing filarial worm in the lymphnodes are dialated and lined by thickened endothelium. They are surrounded by chronic inflammatory infiltrate consisting of lymphocytes, plasma cells eosinophils & histiocytes. The filarial worms are found in the lymph channels. The worms are 30-75 μm wide and have a thin cuticle with fine transverse striations. Dead worm become calcified. The degenerating parasite provide an intense inflammatory reaction in which microabscesses and granuloma formation around central areas of necrosis and coagulated lymph vessel containing the parasite.

METASTATIC MALIGANCY:

Lymph node plays a controlled role in the tumour progression acting as effective barrier as the lymph nodes may be able destroy invading tumour cells partially or completely. Lymph node metastasis in contrast to vascular spread presents as an opportunity for primary tumour diagnosis through FNAC or Biopsy.

HPE:

Metastatic tumour cells first appear in the marginal sinus from which they penetrate the medullary sinus, medulla & cortex and eventualy results in total parenchymal replacement.

FNAC:

- Foreign cells among normal / reactive lymphoid cells.
- Cytological criteria of malignancy

Problems in diagnosis:

- Representative sampling – small metastatic deposit in reactive lymph node may be missed.
- Benign epithelial, mesothelial or naevoid inclusion
- Necrosis or cystic change
- Malignant lympoma
- Pesudoepithelial clustering of lymphoid cell are histiocytes in a bloody smear.

Malignant Lymphomas: [12,15,57,59]

1. LYMPHOBLASTIC LYMPHOMA / LEUKEMIA.

They are most common childhood acute leukemias. 85% are precursor B cell type and the remaining are precursor T cells type. The pre T cell lineage in adolescent males present as lymphomas.

Age less than 15 years. Peak age four years. More common in males.

HPE:

Normal architecture of Lymphnode is completely effaced by lymphoblast having scanty cytoplasm and nuclei larger than those of small lymphocytes. Nuclear chromatin is delicate and finely stippled. Nucleoli is inconspicuous. Nuclear membrane is convoluted. High rate of mitosis and a starry sky pattern produced by interspersed benign tingible body macrophages.

IHC – pre B cell Tdt, + CD10,+CD19, Pre B.cytoplasmic I_gM mature B surface immunoglobulin.

FNAC:

- Relatively monotonus population of neoplastic cell.
- Intermediate size nuclear often with anisonucleosis. Finally granular or speckled nuclear chromatin.
- Variable number of convoluted nuclear (T-cell).
- Moderately basophilic fragile cytoplasm.
- Starry sky macrophages may be present.

2. SMALL NON-CLEAVED CELL LYMPHOMA BURKITT'S LYMPHOMA:

3 types – African (endemic), Sporadic (non-endemic), Aggressive type in HIV patient.

All the three types are histologically identical. Endemic type are EBV related. 25% HIV and 15-20% of sporadic are EBV related. Mostly present in extra nodal sites in jaw, peritoneum, small intestine, thyroid, Ovaries and testis.

Age - Young children

Sex - Male predominance

HPE:

Diffuse effacement of nodal architecture by intermediate sized lymphoid cells containing round to oval nuclei with coarse chromatin, several nucleoli and moderate amphophilic cytoplasm. Mitotic rate is very high, necrosis and apoptotic tumour cell death are present. Evenly distributed macrophages containing cellular debris giving a mottled (starry- Sky) appearance at low power.

IHC:

Mature B cell – surface IgM, monotypic kappa or lambda, CD19, CD20 and CD10 +ve.

FNAC:

- A relatively uniform population with high mitotic rate.
- Rounded nuclei of variable but predominantly intermediate size.
- A granular a speckled chromatin pattern multiple small prominent nucleoli
- A variable, mostly thin rim of dense blue cytoplasm with small lipid vacuoles.
- Starry sky macrophages often prominent
- Immunophenotype SI_gM, pan B.

DIFFUSE LARGE B CELL LYMPHOMA

5% of childhood lymphoma are of this type.

HPE:

Diffuse effacement of lymph node by proliferation of relatively large cell usually 4-5 times the size of the small lymphocytes. The tumour cells have round to oval vesicular nuclei with regular nuclear membrane, large multilobated or cleaved nucleus with 2-3 nucleoli. Cytoplasm moderately abundant pale or basophlic. More anaplastic cells are multinucleated cells with large inclusion like nucleoli which resembles RS cells.

IHC: Mature B cell tumour marker CD19, +CD20, Most have surface Ig & negative for TdT.

FNAC:

- A population of mainly centroblasts.
- Charaterestically rounded nuclei with multiple small nucleoli.
- A variable proportion of indented cleaved of even multilobated nuclei are often present.
- Immunoblasts with abundant eosinophlic cytoplasm and large central nucleoli may be present in the polymorphous subtype.

Problems in diagnosis of NHL

- Suboptimal cytological preparation
- Variable pattern in one node
- Distinction from reactive lymphadenopathy
- Malignant lymphoma with few neoplastic cells in a dominant population of reactive lymphoid cells (e.g.) T cell rich B lymphoma.
- Small cell anaplastic carcinoma and other small round cell tumour particularly versus mantel cell lymphoma and lymphoblastic type.
- Large cell undifferentiated carcinoma and melanoma versus large cell lymphoma especially ML 30 +ve.
- The effects of chemotherapy and radiotherapy.

HODGKIN'S LYMPHOMA:

Hodgkin's disease is the primary nodal tumour of apparently lymphoid lineage. It is one of the most common malignancy in young adults. In children, the common type seen is nodular sclerosis and lymphocyte predominance.

In Nodular sclerosis type male and female are equally affected however cervical & supraclavicular and mediastinal nodes are involved. EB virus is negative.

HPE:

- Presence of lacunar cells.
- Collagen bands that divide the lymphoid tissue into circumscribed nodule and neoplastic cells are found in a polymorphous population of eosinophils, plasma cells and macrophages.
- Diagnostic Reed Sternberg cells are less frequent

IHC: Tumour cells are CD15+ve, CD30 +ve, CD45 –ve

B cell + T cell marker are negative.

LYMPHOCYTE PREDOMINANCE:

Forms 5% of the tumours in child-hood. Male predominance is seen. Cases occur in individuals younger than 35yrs. Usually cervical and axillary nodes are involved. EB virus negative.

HPE:

Nodal effacement by a nodular infiltrate of small lymphocytes admixed with benign histocytes. Typical RS cells are difficult to find Lympho Histocytic (LH) variant that have a delicate multilobated nucleus resembling a popcornkernal (pop corn cells). Other cells are scanty or absent. The LH variants are CD20+ve. 35% of cases transforms to diffuse large B cell lymphoma.

FNAC:

- Reed sternberg cells
- Atypical mononuclear cells (Hodgkin's cells)
- A variable number of eosinophils, plasma cells and histocytes.
- A background population of lymphocyte.

Problems in diagnosis:

- Poor biopsy yield
- Reed Sternberg like cells in other condition like immunoblastic lymphoma, infectious mononucleosis, large cell lymphoma, and Metastatic squamous cell carcinoma.

OBSERVATION AND RESULTS

OBSERVATION AND RESULT

This prospective study included 434 FNAC samples and 72 surgical specimens of paediatric patients clinically evaluated and presented with lymphadenopathy.

In 434 FNA cases 159 (36.63%) were females with age ranging from 0-12 years (Mean age of 6 years) and 275 (63.36%) were males with age ranging from 0-12 years (Mean age of 6 years).

The clinical, cytological features, histopathogical data, special stain and immunohistochemistry studies conducted are listed in the master chart.

Table-1 shows the incidence of paediatric lymphadenopathy referred for fine needle aspiration and subsequent cytological evaluation during the period from Jan 2003 to August 2005.

Table – 1

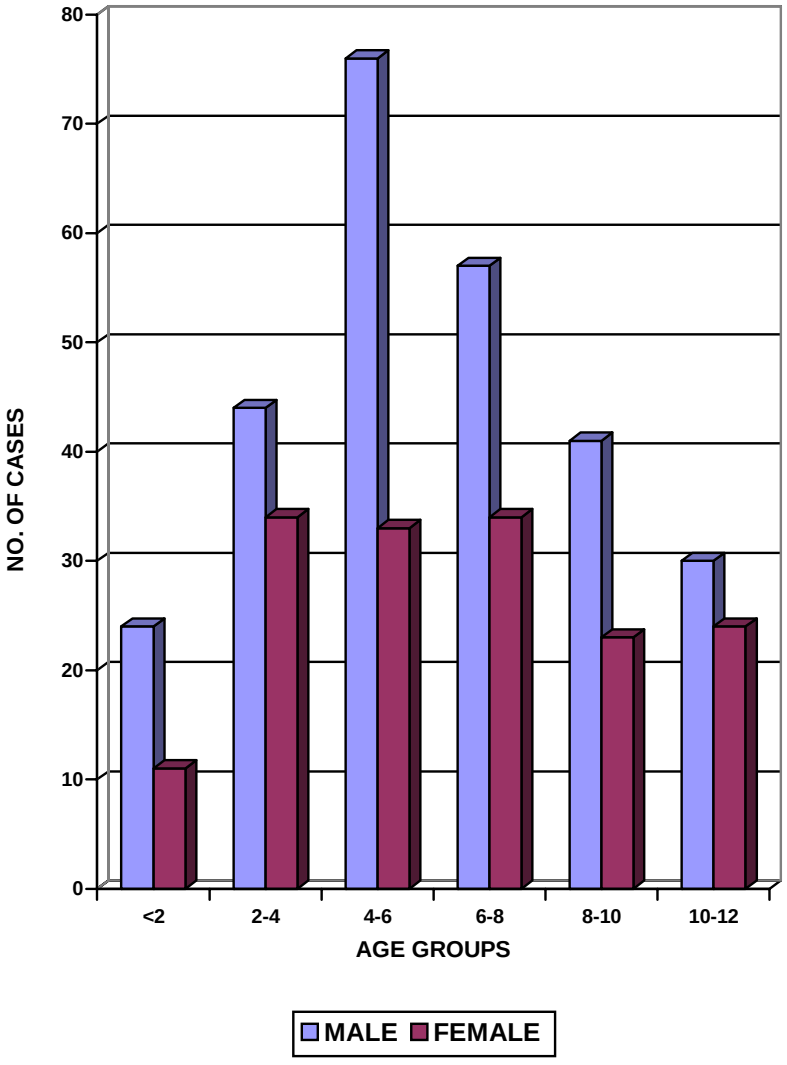
S. No.	Period	Total No of FNA Cases Referred	Total No of LN cases in children	Percentage (%)
1	Jan-2003 to Dec-2003	1758	88	5%
2	Jan-2004 to Dec-2004	2384	158	6.62%
3	Jan-2005 to Aug-2005	1711	188	10.98%

Table 1 – A shows the incidence of paediatric lymphnode specimen referred for histopathological evaluation.

Table 1 – A

S. No.	Period	Total No of HPE Specimen	Total No of LN cases in children	Percentage (%)
1	Jan-2003 to Dec-2003	2344	28	1.19%
2	Jan-2004 to Dec-2004	2795	23	0.82%
3	Jan-2005 to Aug-2005	2040	21	1.02%

AGE AND SEX INCIDENCE FNAC



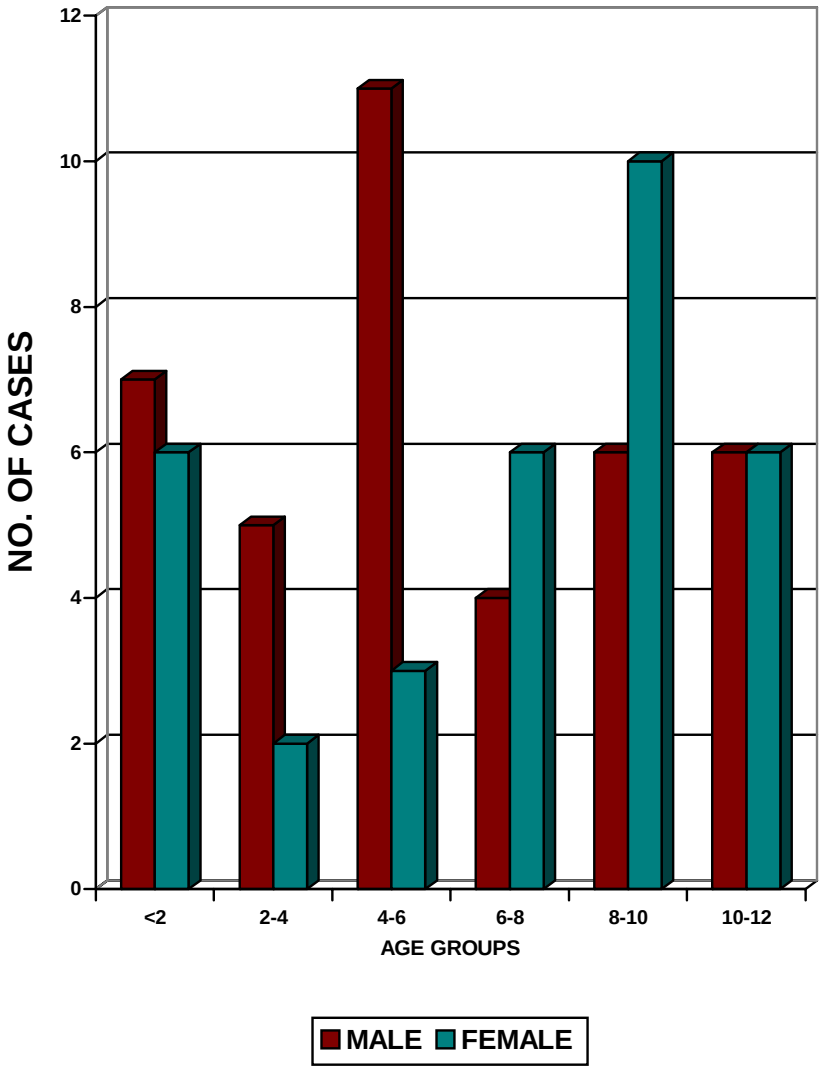
AGE INCIDENCE:

The patients with lymphadenopathy referred for fine needle aspiration cytology were divided into six groups according to their age (i.e. 0-2,2-4,4-6,6-8, 8-10,10-12). There was increased incidence in lymphadenopathy observed in the age group of 4-6 years (25.81%) followed by 6-8 years (20.97%) and 2-4 years (17.97%). The age distribution of FNA lymphnode is given in the following Table 2.

Table – 2

S. No	Age Group	No of Cases			Percentage (%)
		M	F	T	
1	0-2	24	11	35	8.06%
2	2-4	44	34	78	17.97%
3	4-6	79	33	112	25.81%
4	6-8	57	34	91	20.97%
5	8-10	41	23	64	14.75%
6	10-12	30	24	54	12.44%

AGE AND SEX INCIDENCE IN HPE



Similarly the age distributions of lymphnode specimen received for biopsy were also calculated according to age. Table 2-A shows increased incidence of lymphadenopathy in the group of 8-10 years (22.22%) followed by 4-6 years (19.44%) and 0-2 years (18.06%)

Table 2 – A

S. No	Age Group	No of Cases			Percentage (%)
		M	F	T	
1	0-2	7	6	13	18.06%
2	2-4	5	2	7	9.72%
3	4-6	11	3	14	19.44%
4	6-8	4	6	10	13.89%
5	8-10	6	10	16	22.22%
6	10-12	6	6	12	16.67%

Most of the patients referred for fine needle aspiration cytology as well as surgical resection belong to the surrounding villages of lower social economic status, who lived in a over crowded surroundings. A small portion of them showed history of contact to Tuberculosis.

434 cases were referred for fine needle aspiration and Cytological evaluation was done and categorized as

LN 1	-	Reactive
LN 2	-	TB
LN 3	-	Granulomatous
LN 4	-	Non-Lymphoid
LN 5	-	Inadequate
LN 6	-	Malignant

Among the 434 cases initial cytological diagnosis as reactive lymphadenitis (fig1&2) was given for 296 (68.2%) cases, 36 cases as tuberculous lymphadenitis (fig 3&4), 10 as Granulomatous lymphadenitis (fig 5), 5 as Nonlymphoid, 9 as inadequate, 13 as malignant and 65 as others was given.

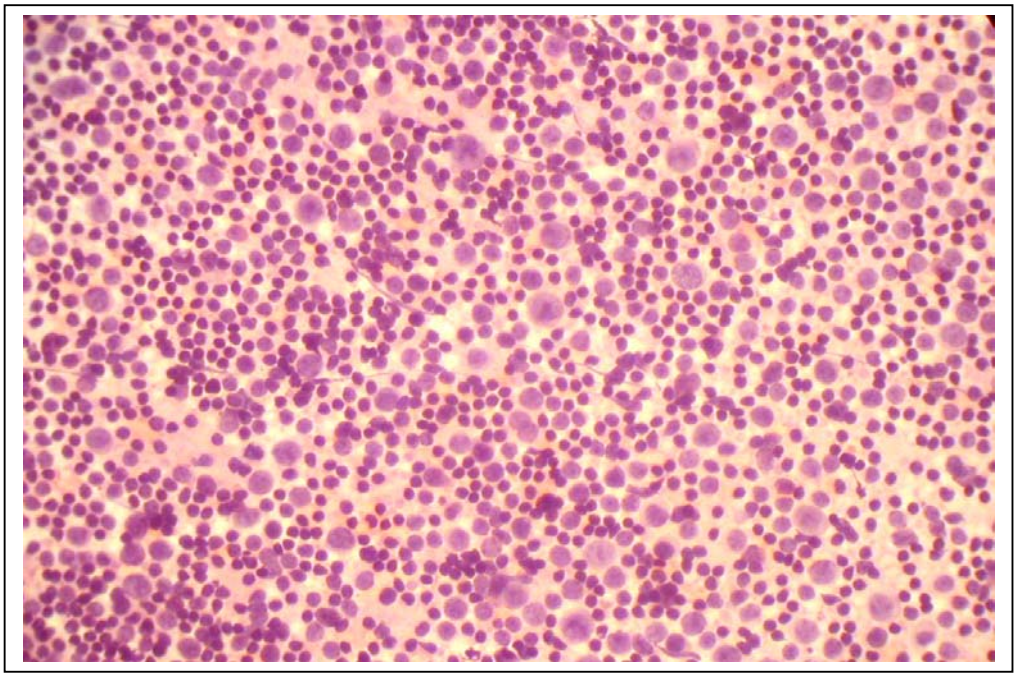


Fig1 – FNA of Reactive lymphadenitis. Smear shows centroblast, centrocytes with predominance of small lymphocytes (H&E, X 400).

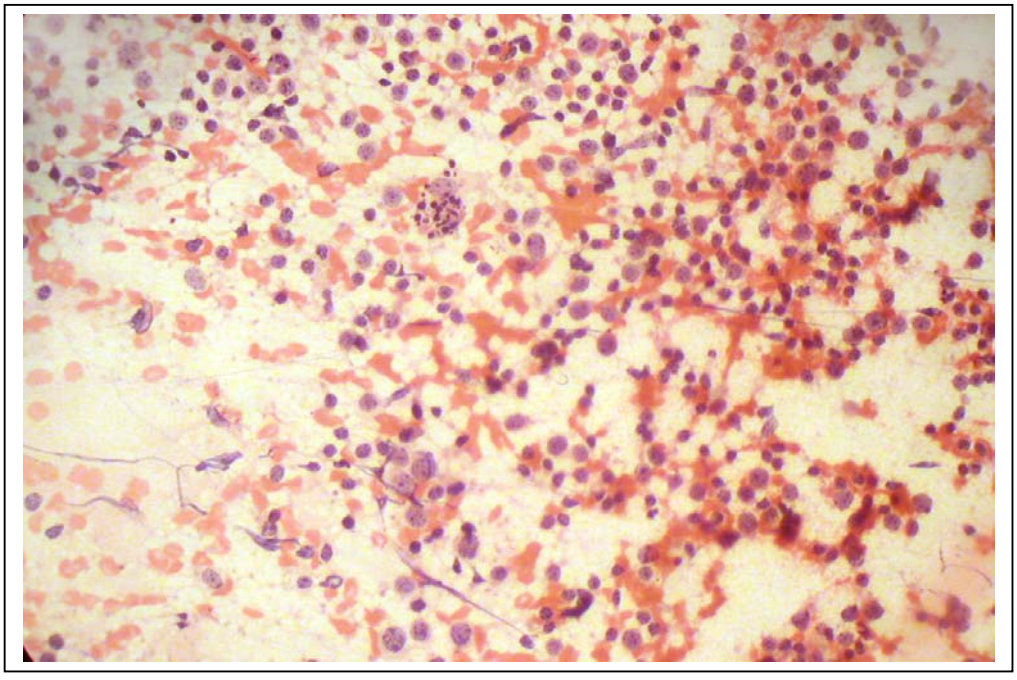


Fig 2 – FNA of Reactive lymphadenitis. Smear from a reactive node with a classical tingible body macrophage (H &E, X400).

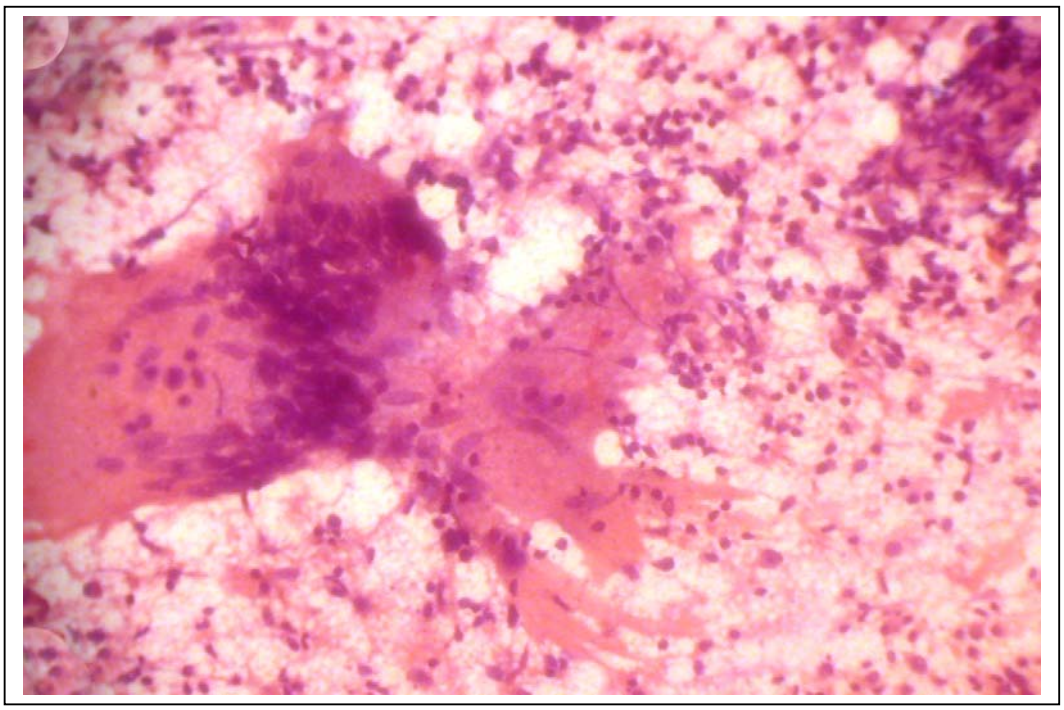


Fig 3 – FNA of Tuberculous lymphadenitis.
Smear shows Granuloma composed of epithelioid cells (H & E, X400).

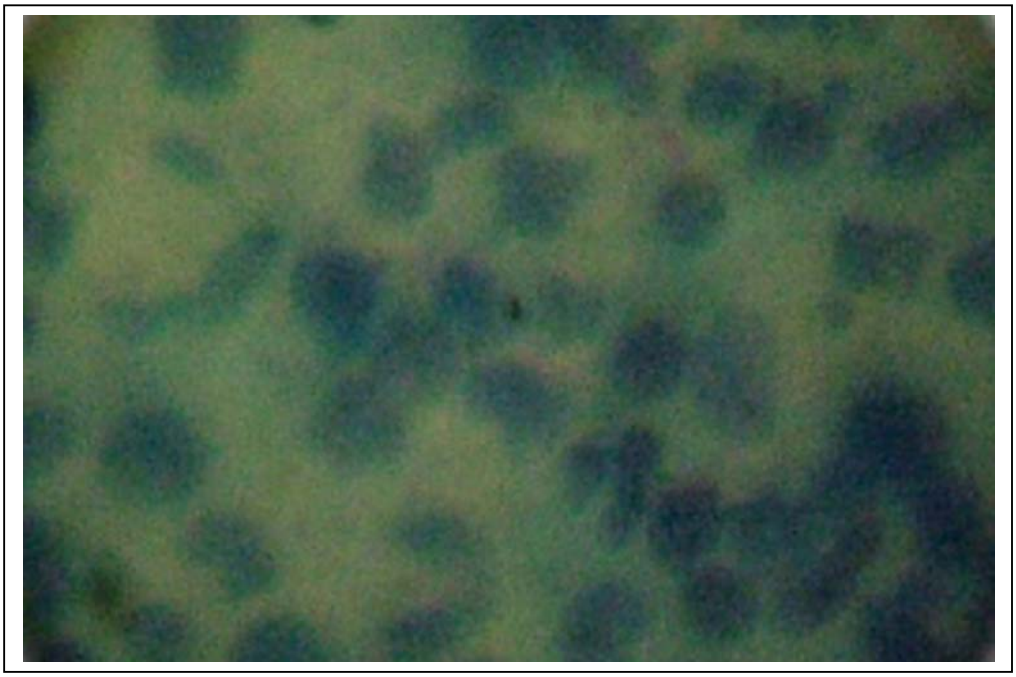


Fig 4 – FNA of Tuberculous lymphadenitis. Smear shows Acid fast Tuberculous baclli(arrow) in caseous necrosis (ZN stain , X1000).

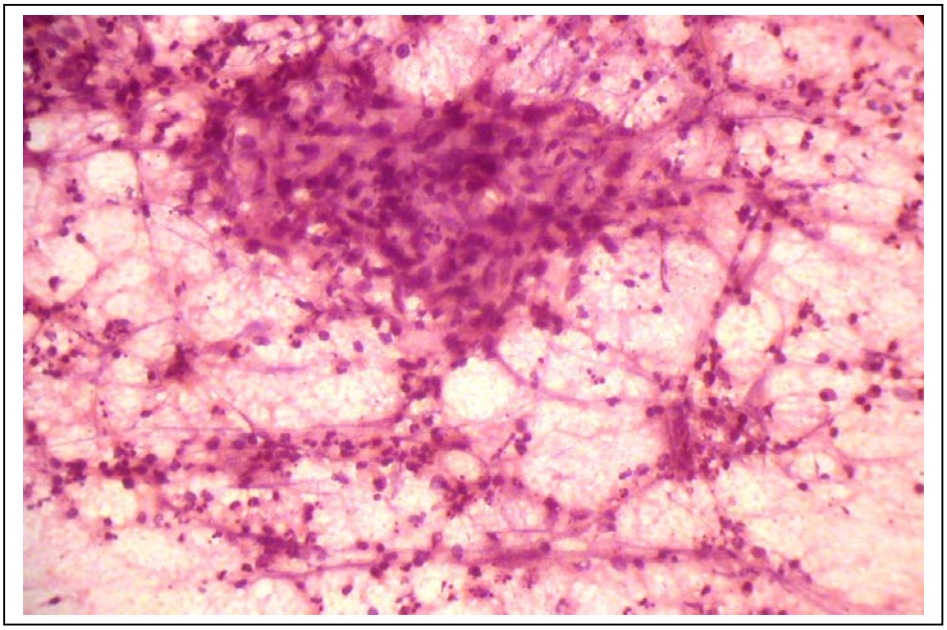


Fig 5 – FNA of Granulomatous lymphadenitis. Smear shows clusters of epithelioid cells forming atypical granuloma (H & E , X400).

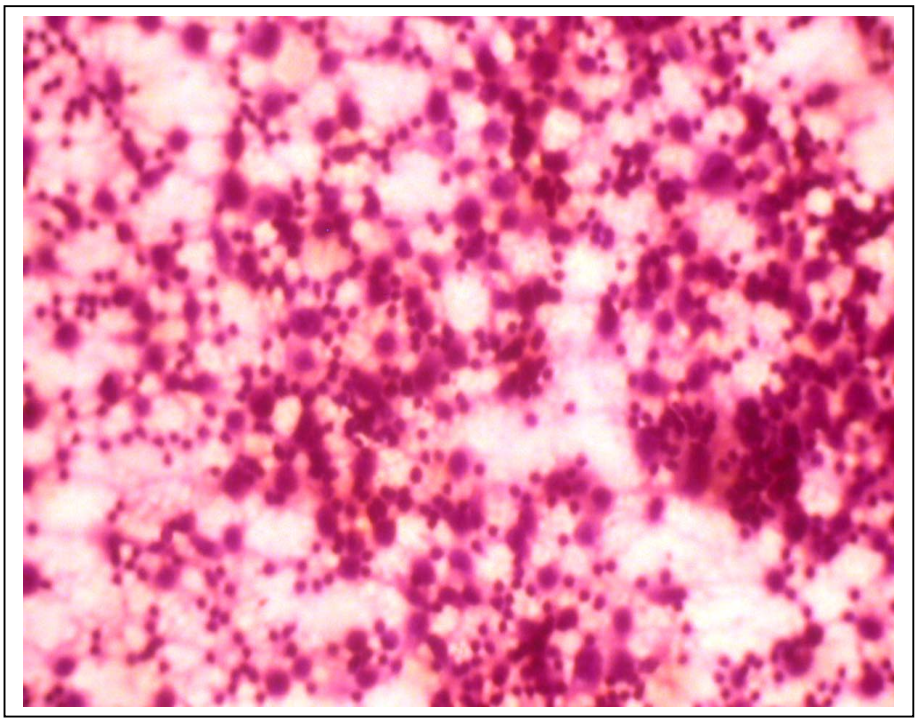
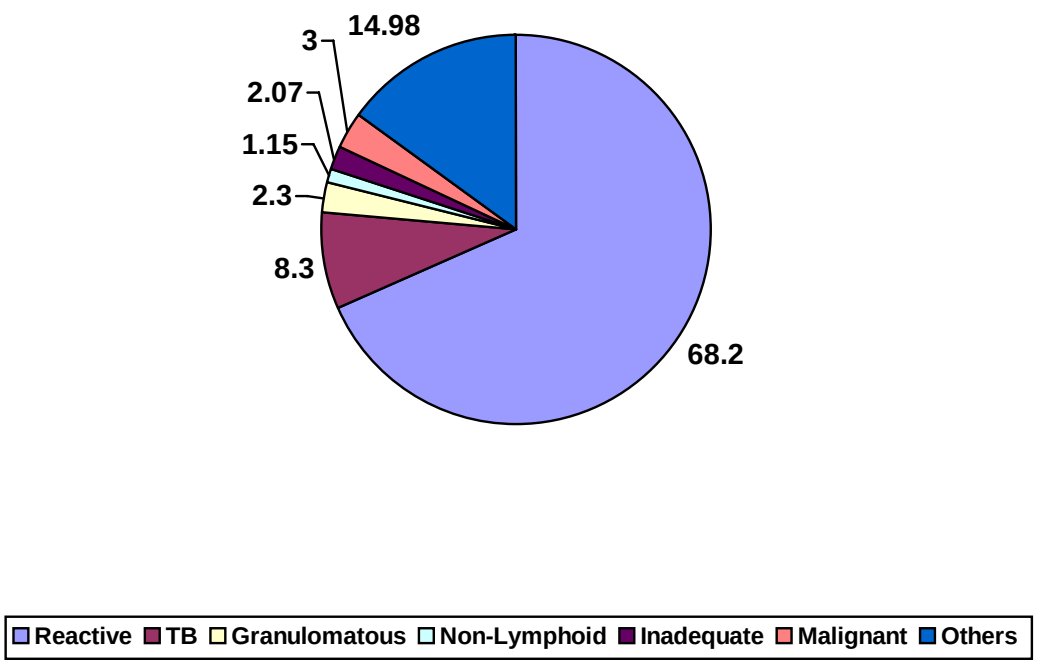


Fig 6 – FNA of Lymphoproliferative disorder. Smear shows monotonous population of slightly enlarged lymphocytes with irregular nuclei and coarsely granular chromatin (H & E, X400).

CYTOPATHOLOGICAL RESULTS



In 13 (2.99%) cases of neoplastic lesions initially suspected as lymphoproliferative disorder, Non Hodgkin's lymphoma was observed in most of the cases. On cytological evaluation exhibited a monotonous population of neoplastic lymphoid cells with irregular nuclei and prominent nucleoli (fig 6). The features of reactive lymphadenopathy with hyperplastic lymphoid lineage was also in mind in evaluating the lymphoid lesion.

In initial evaluation, 11 cases were diagnosed as lymphoproliferative disorder and 2 cases as Non Hodgkin's lymphoma in which both clinical as well as cytological features were observed and also correlated. The cytological results of fine needle aspiration cytology in children with suspicious peripheral lymphadenopathy is given in the following Table – 3.

Table – 3

	2003		2004		2005		Total	Percentage %
	M	F	M	F	M	F		
Reactive	26	12	74	40	83	61	296	68.2%
TB	6	7	9	6	2	6	36	8.3%
Granulomatous	-	-	1	3	5	1	10	2.31%
Non Lymphoid	1	1	2	1	-	-	5	1.15%
Inadequate	2	2	2	1	2	-	9	2.07%
Malignant	5	1	-	-	5	2	13	2.99%
Others	23	4	13	6	13	6	65	14.98%

The above table also shows that the patients referred for initial cytological evaluation for fine needle aspiration cytology is also increased. Out of 434 cases, 9 cases (2.07%) were interpreted as inadequate smear due to faulty technique or lack or accessibility.

The distribution of the lymphnode is as follows.

- Cervical - 389
- Axillary - 28
- Inguinal - 15
- Case of Rhabdomycosarcoma - 1 (fig 7)
- Case of small blue round cell tumour was obtained - 1

HISTOPATHOLOGICAL EVALUATION:

Out of 72 lymphnode specimen received for histopathology studies 56 cases were non neoplastic lesion (Reactive, Granulomatous, TB) and 12 cases were neoplastic. In the non-neoplastic lesion most of them were reactive hyperplasia (fig 8) followed by caseating tuberculous lymphadenitis (fig 9). 3 cases were of granulomatous lymphadenopathy in which no areas of caseation necrosis was present, classical epithelioid histiocytes was observed and TB was suspected and interpreted as atyplical granulomatous lesion (fig 10).

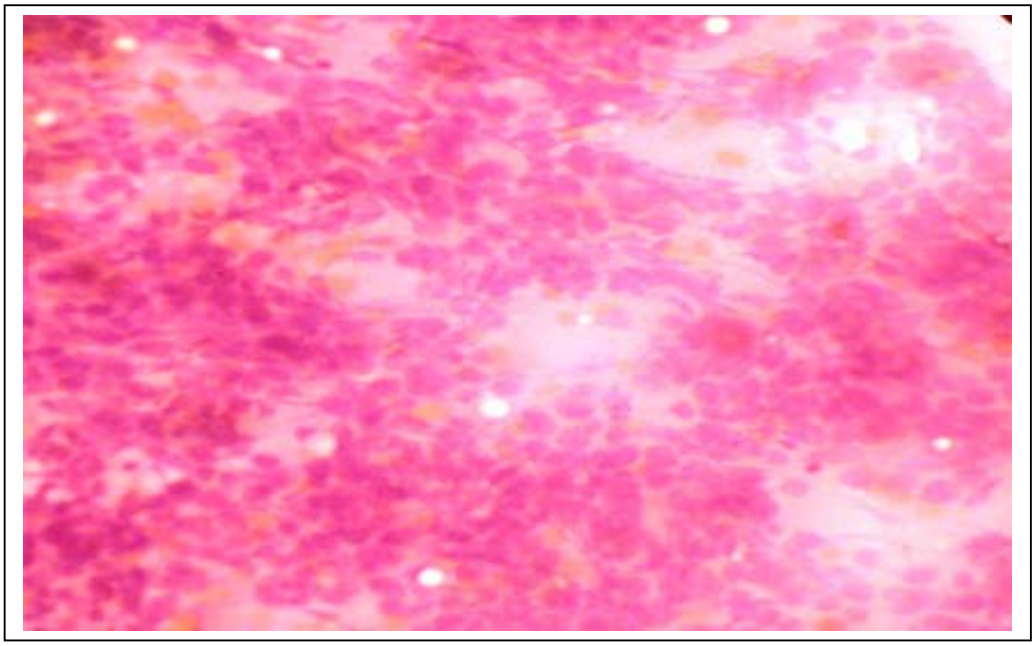


Fig 7 – FNA of Rhabdomyosarcoma. Smear shows small undifferentiated cells with variation in size and shape with few cells having abundant dense cytoplasm (H & E, X400)

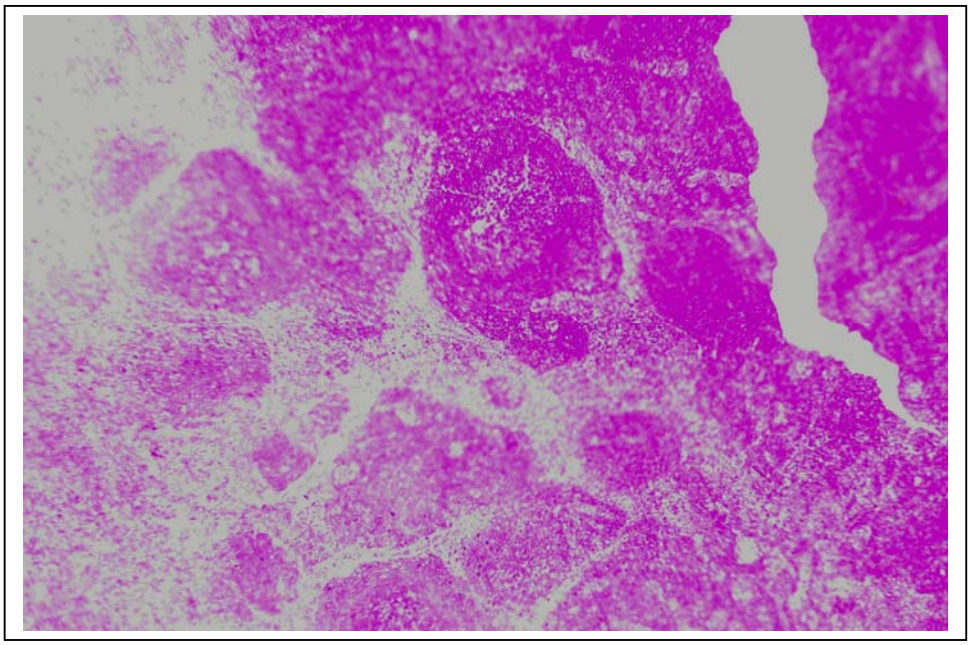


Fig 8 – H & E. Section shows prominence of germinal centers with centroblast, centrocyte and tingible body macrophages (H & E, X100).

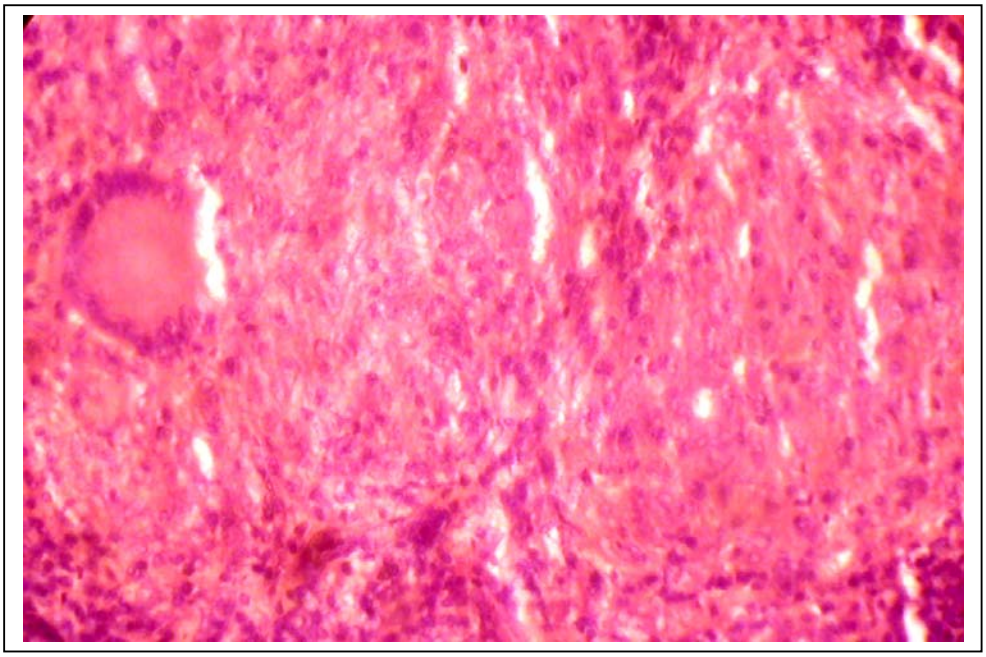


Fig 9 –H & E section shows epithelioid cells, Langhan's giant cells and Lymphocytes (H & E X400).

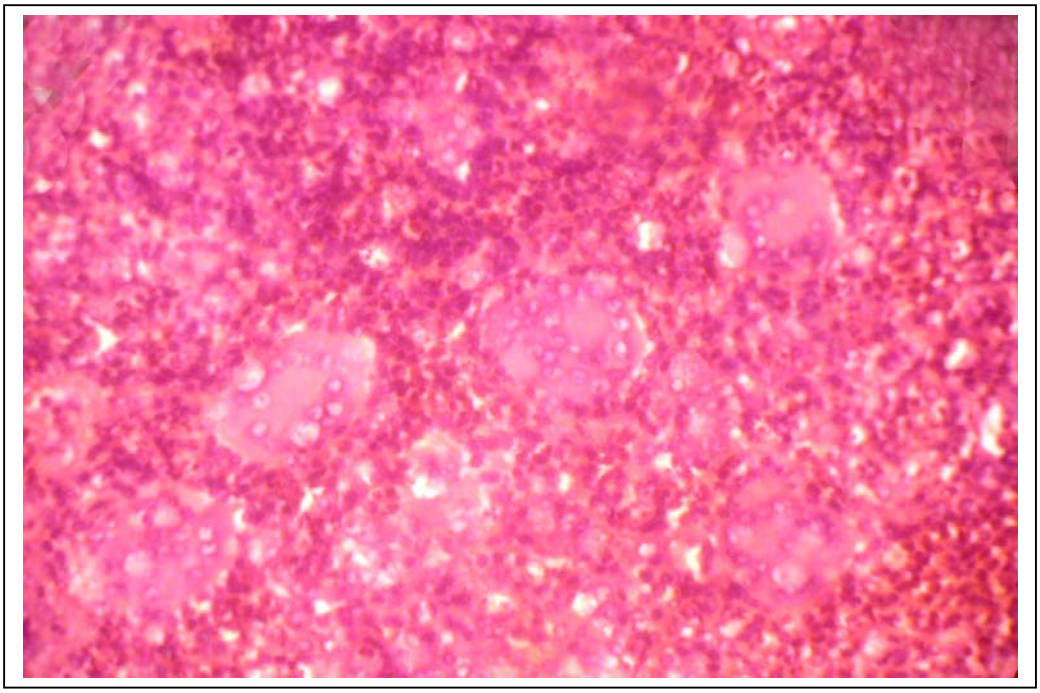


Fig 10 – H & E of Atypical Granuloma with scattered neutrophils, epithelioid histocytes and giant cells (H & E X400).

3 cases of non-lymphatic lesion was observed in which one interesting case of Kimura's disease (fig 11& 12) with features of eosinophilia was diagnosed. Out of 12 cases of the neoplastic group, 8 cases were diagnosed as Non Hodgkin's lymphoma and 3 cases were of lymphoma, which further required CD marker for final confirmation. Histochemistry with Gomori's reticulin impregnation technique was also performed in all cases (Fig 13 & 14). All the eight cases of NHL diagnosed by HPE initially and 3 suspected cases of lymphoproliferative disorder were subjected to immunohistochemistry evaluation by CD markers (Pan T and Pan B markers). Nine cases show strong positivity for Pan B marker where Pan T markers were negative. Two cases showed Pan T marker positivity in which Pan B was totally negative (fig 15-22). The method used and the scoring is given in Appendix-V.

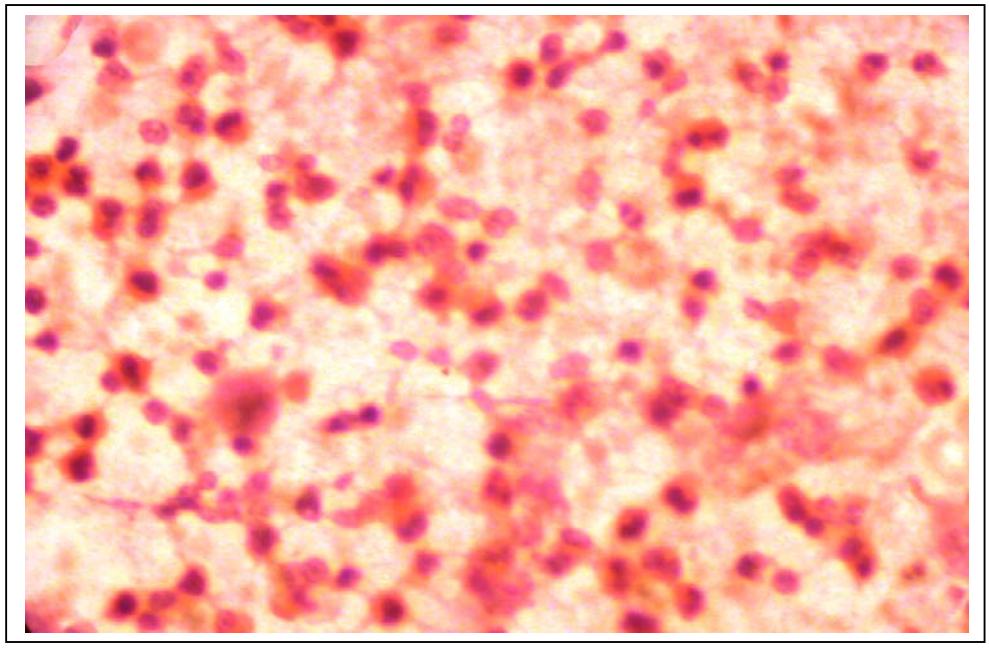


Fig 11 – FNA of Kimura's Lymphadenopathy. Hypercellular smear with mature lymphocytes and eosinophils (H & E, X1000).

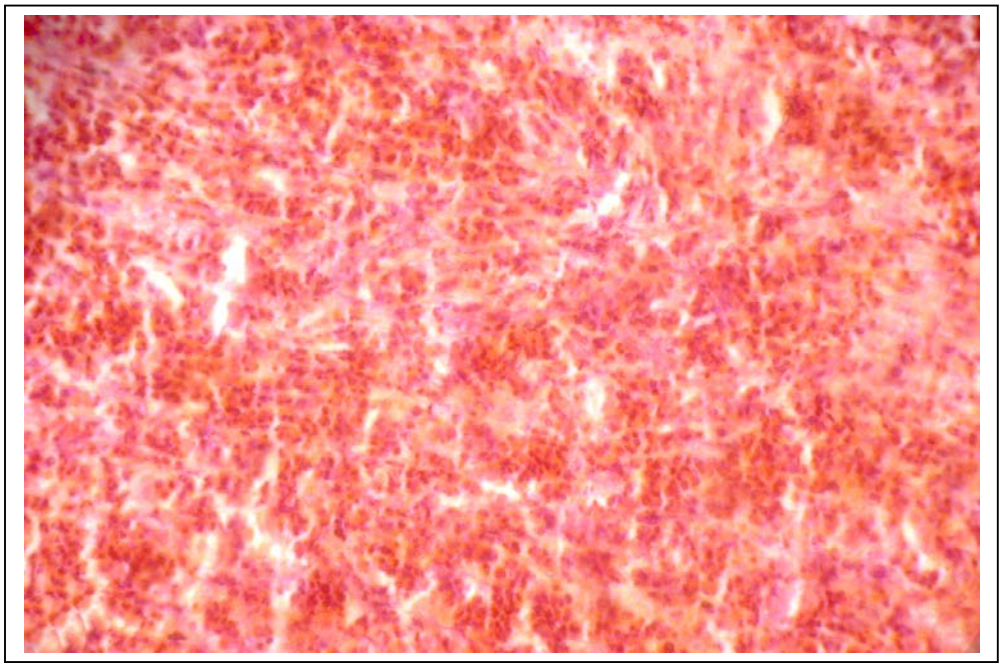


Fig 12 – H & E. Section shows a mature lymphoid cell proliferation with abundant eosinophils (H & E, X100).

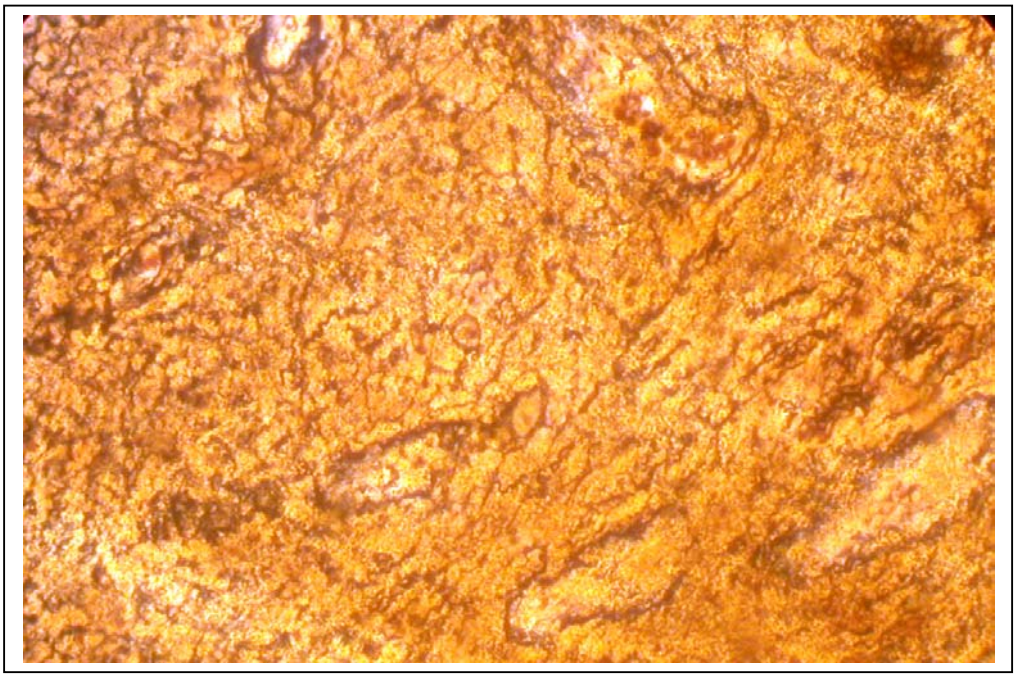


Fig 13 – Lymphoproliferative disorder, Reticulin staining by silver impregnation method. Section shows compression of reticulin fibres (X 400).

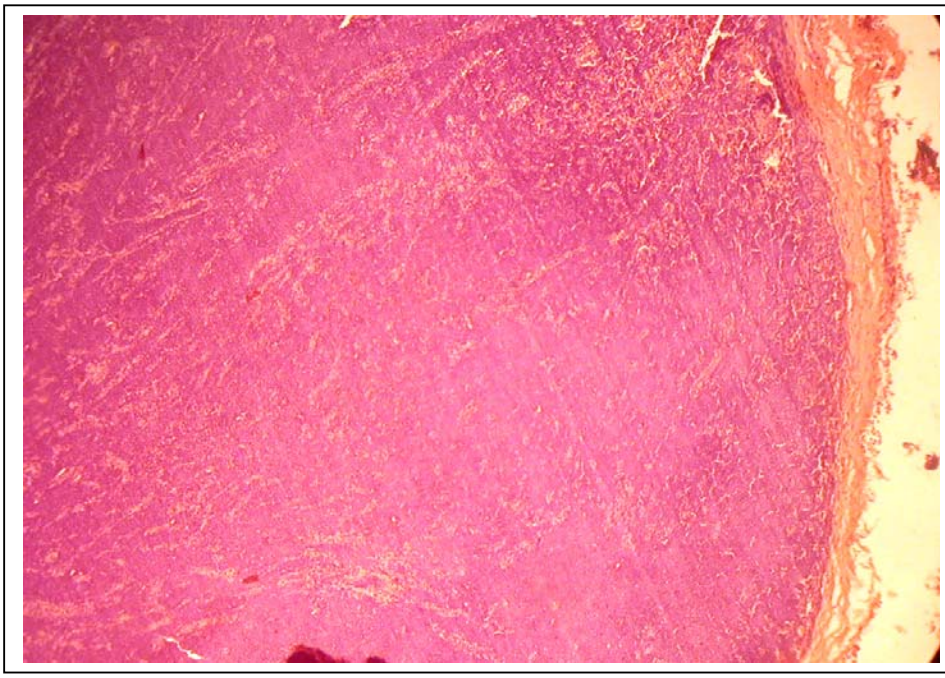


Fig 14 – H & E**.** Section shows a monotonous population of slightly enlarged lymphocytes with coarsely granular chromatin (H & E X100).

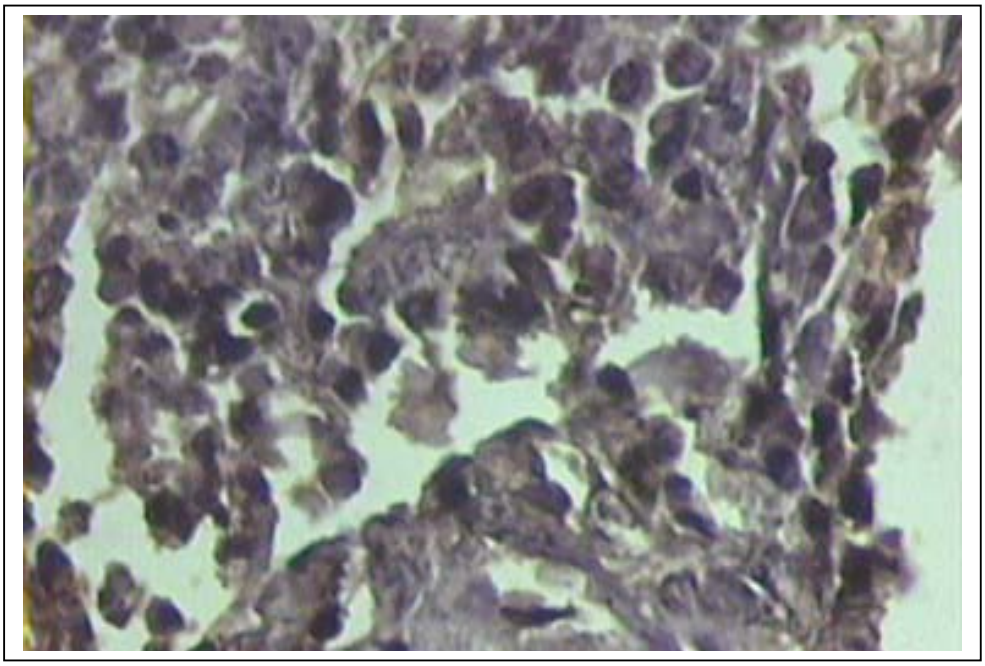


Fig 15 – Lymphoma cells showing strong expression of T cell marker on immunostaining with CD3 (X 1000)

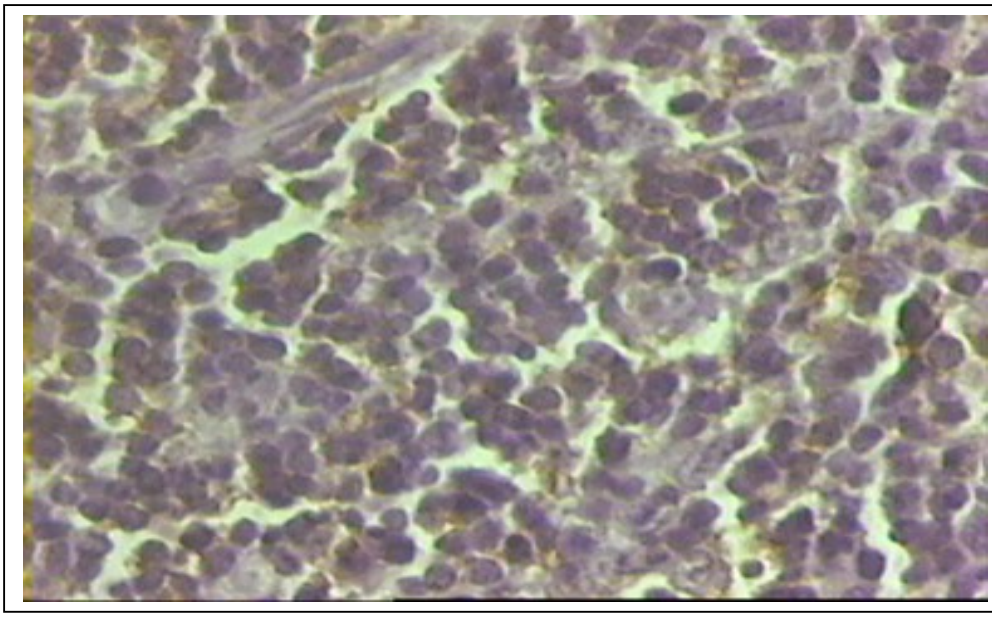


Fig 16 – Lymphoma cells showing strong expression of T cell marker on immunostaining with CD3 (X 1000)

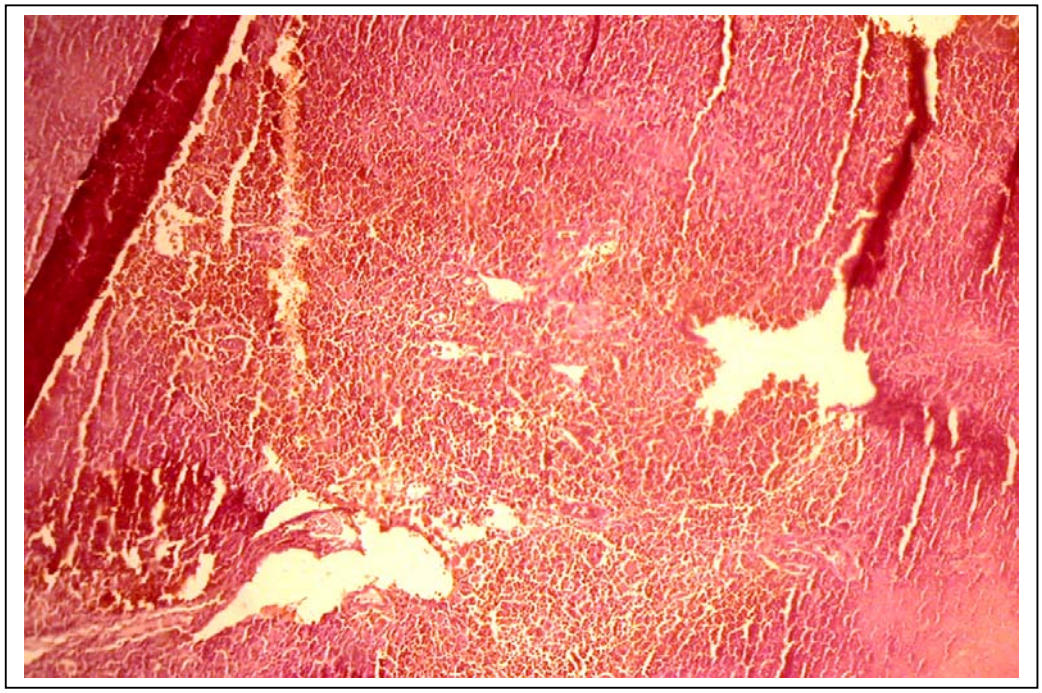


Fig 17 – Lymphoma cells express B cell marker CD 20 stained with L26 antibody (Immunoperoxidase stain, X 100)

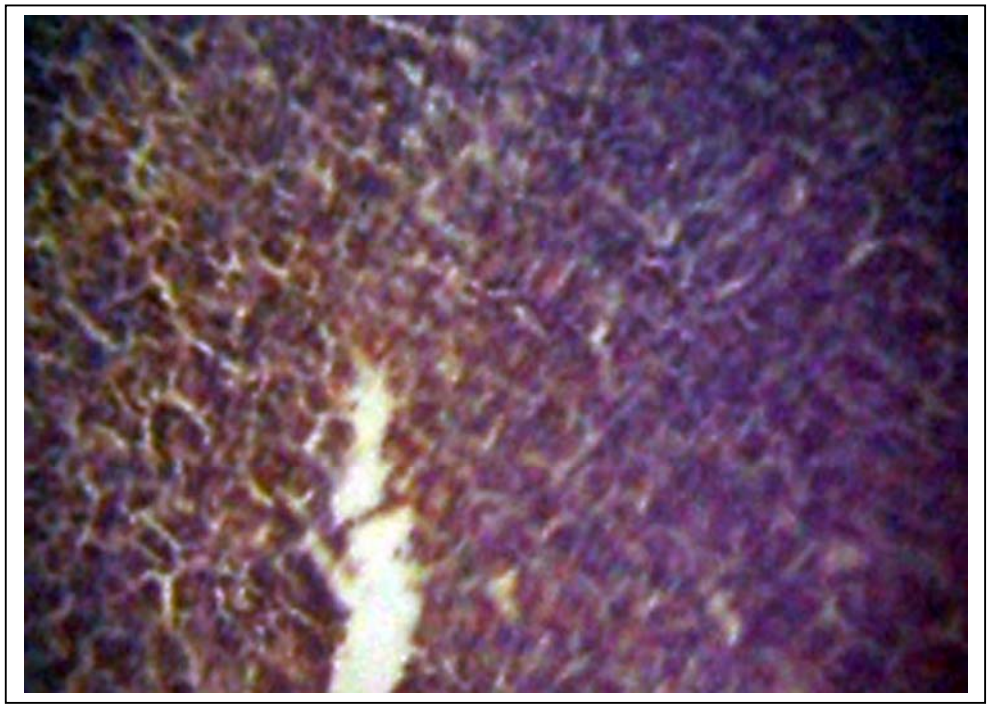


Fig 18 – Lymphoma cells express B cell marker CD 20 stained with L26 antibody (Immunoperoxidase stain, X 400)

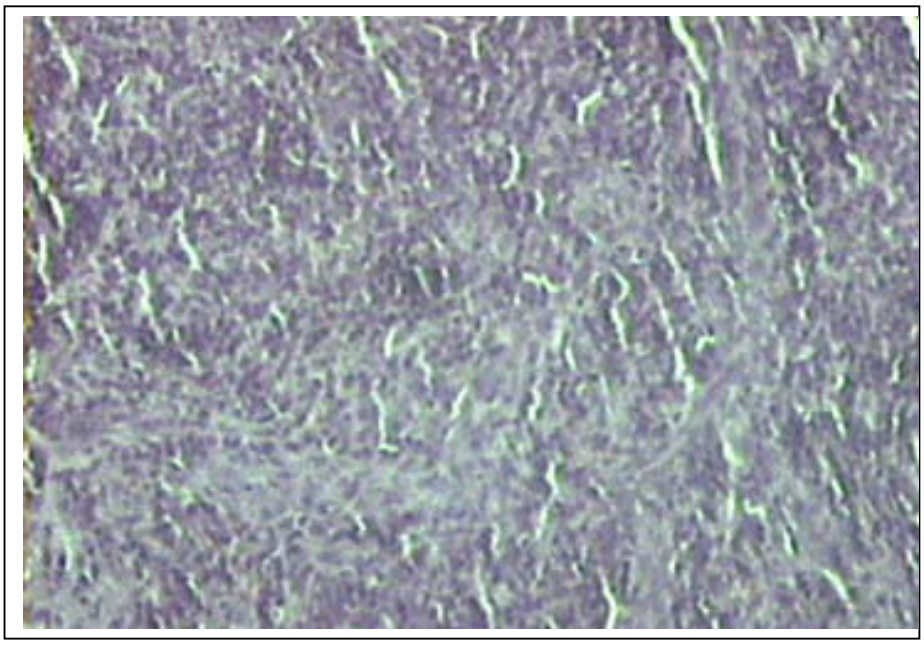


Fig 19 – Lymphoma cells express B cell marker CD 20 stained with L26 antibody (Immunoperoxidase stain, X 100)

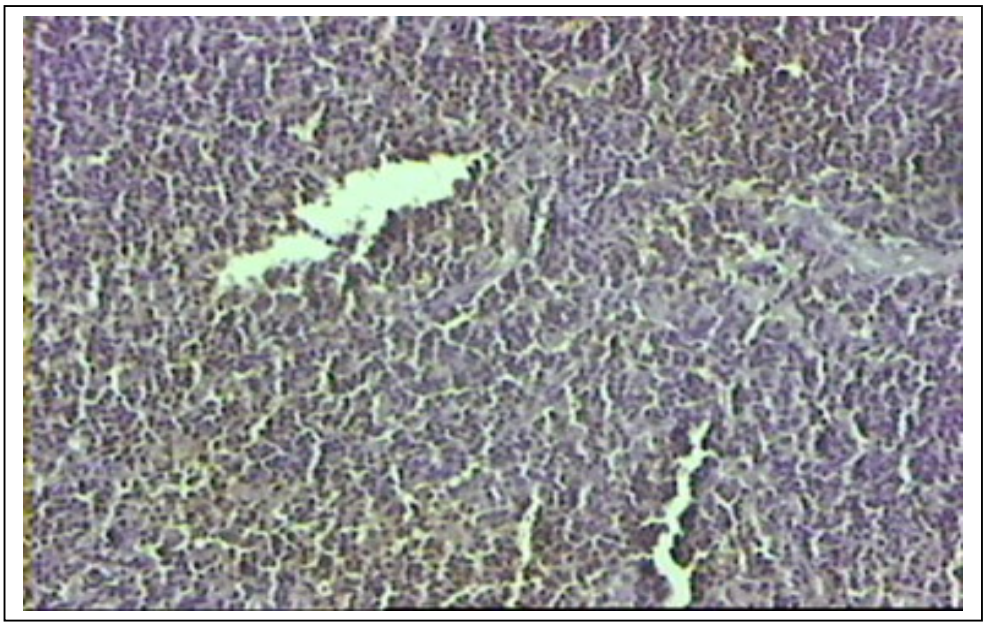


Fig 20 – Lymphoma cells express membrane CD 20 B cell marker, L26 / Peroxidase immunostain (X 100)

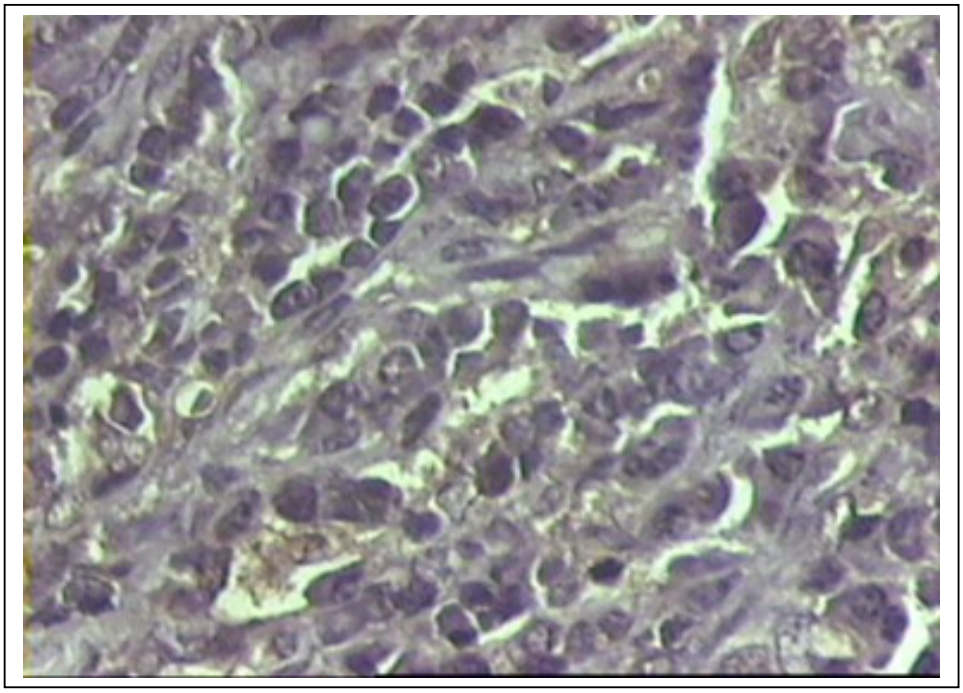


Fig 21 – Lymphoma cells express membrane CD 20 B cell marker, L26 / Peroxidase immunostain (X 1000)

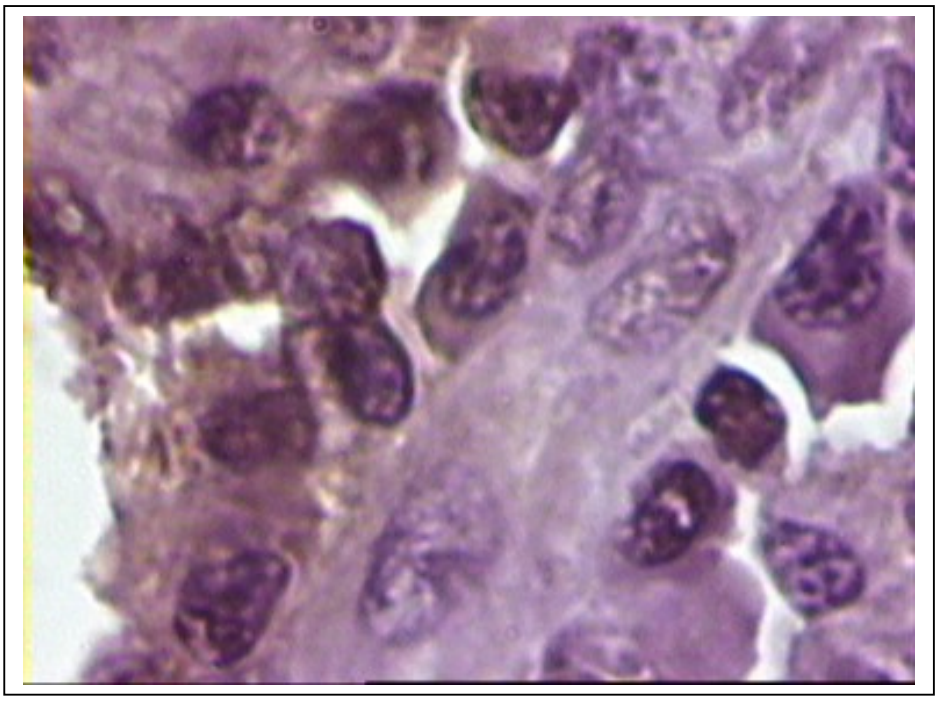
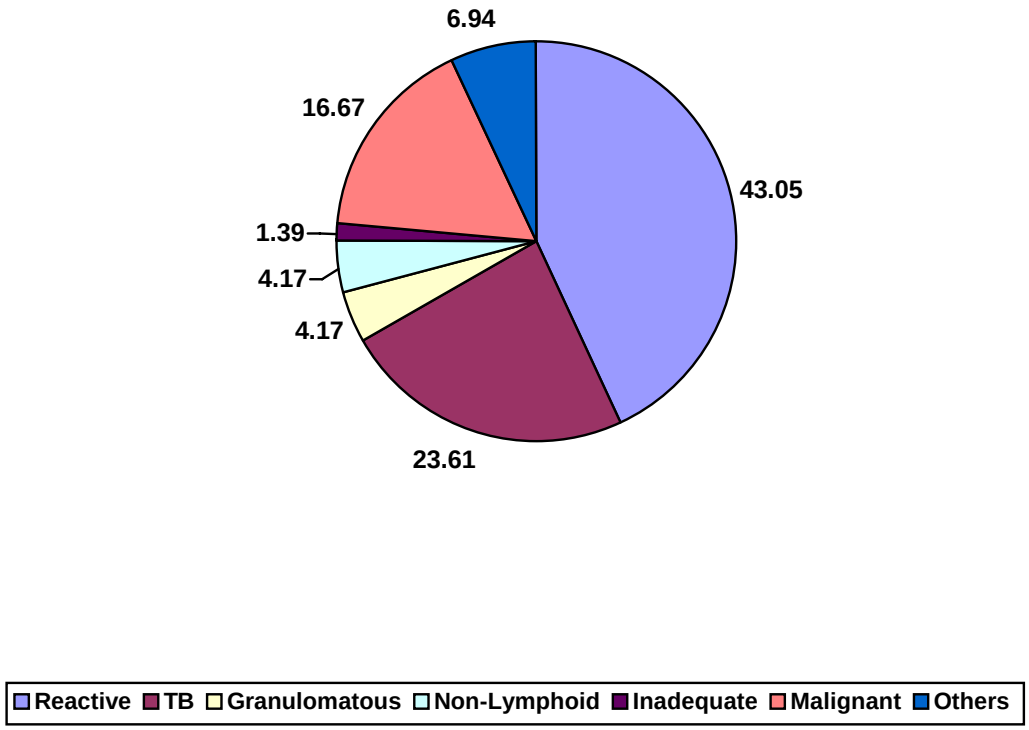


Fig 22 – Lymphoma cells showing strong expression of T cell marker on immunostaining with CD3 (X 1000)

HISTOPATHOLOGICAL RESULTS



The following Table – 4 shows the histopathological evaluation of lymphoid lesion in children.

Table – 4

	2003		2004		2005		Total	Percentage %
	M	F	M	F	M	F		
Reactive	8	3	6	4	8	2	31	43.05%
TB	1	7	1	6	2	-	17	23.61%
Granulomatous	2	-	-	-	-	1	3	4.17%
Non Lymphoid	1	-	-	1	1	-	3	4.17%
Inadequate	-	-	-	1	-	-	1	1.39%
Malignant	3	2	3	-	2	2	12	16.67%
Others	-	1	1	-	2	1	5	6.94%

The following Table – 5 show the percentage of cases for which cytological evaluation was carried out initially with subsequent histopathological study of surgically excised lymphnode

Table – 5

S. No	Lymphnode	FNAC	HPE	Percentage (%)
1	Reactive	296	13	4.39%
2	TB	36	4	11.11%
3	Granulomatous	10	1	10%
4	Malignant	13	11	84.6%
5.	Others	65	4	6.15%

DISCUSSION

DISCUSSION

The incidence of paediatric lymphadenopathy referred for fine needle aspiration cytology during the period of two and half years from January 2003 to August 2005 has revealed that there is gradual increase in the number of cases subjected for initial fine needle evaluation which clearly shows the increasing sensitivity and specificity of the procedure and the importance of FNA as an initial gold standard diagnostic tool.

S. No	Year	Total No of FNAC-Lymph Node	FNACof Lymph Node in Children	Percentage %
1	Jan 2003-Dec 2003	539	88	16%
2	Jan 2004-Dec 2004	556	158	28%
3	Jan 2005-Aug 2005	403	188	46%

In our study the incidence as well as the prevalence of paediatric lymphoreticular malignancy is 2.99% which is well comparable with studies conducted by Jain et al 1995 [26] and Hand et al 2001 [61] but in contrast, the study conducted by Puspha et al 1991 [45] showed an incidence of 14% and Orford et al 1993 [39] as12%.

S. no	Study	Year	Non Neoplastic	Neoplastic
1.	Buchino	1990	83.7%	4%
2.	Rio	1999	73.7%	18.9%
3	Gamba	1995	81%	7.2%
4.	Handa	2001	94%	1.3%
5.	Jain	1995	98%	1.8%
6.	Brent Ponder	2000	83%	4.7%
7.	Orford	1993	67%	12%
8.	Derhwitz	1994	83.7%	4%
9.	Puspha	1991	86%	14%
10	Lei	1999	76%	6%
11	Present study	2005	94%	2.99%

In our study symptomatic lymph node enlargement mostly involved head and neck region, axillary region, inguinal region as in other studies by Leydia pleotis [24] and Robert R Ferrer. [53]

Lymph nodes which are greater than 3 cm should always be viewed with a great deal of suspicion. Likewise, posterior and lower cervical nodes are more apt to harbour a malignancy. Lymph nodes are not normally found in the supraclavicular region. Nodes in this area have been reported to have up to a 60% malignancy rate.

Tender neck masses in the jugulodigastric (beneath the superior portion of the sternocleidomastoid muscle) presenting in a febrile child, are often infectious in etiology. In those cases, lymphadenitis and infected congenital cysts are at the top of the differential diagnosis. The latter must be seriously considered if etiologies for the infected nodes are not found. Non tender small lymph nodes (less than 1 cm) in this area are common in children and may represent a slowly resolving lymphadenitis or a reactive lymphadenitis from a low grade chronic tonsillitis. Initial screening tests including a chest x-ray, complete blood count with differential, monospot, taxoplasmosis, and cytomegalovirus, and cat scratch fever titers should be considered. [32,53]

Enlargement of lymph nodes in children are most often in response to infection either acute or chronic and maybe a local or systemic phenomenon. Lymph nodes in the neck, drain into fairly predictable areas of the head and face. These should diligently be searched for a source of inflammation. Chronic, painless lymphadenitis may be caused by many bacterial, fungal, viral, and parasitic infiltrations. Often, no etiologic agent is identified and on biopsy the found to have follicular hypertrophy and is described as ”reactive”.

A sex ratio in cases of reactive lymphadenitis was 1.6 : 1 male and females with slight male predominance. Stain et al also reported sex ratio of 1.7 : 1 and 2 : 1 with definite male predominance. [54] Female predominance was observed in our study in case of Tuberculous lymphadenitis with male: Female ratio of 1:1.1. The sex ratio of Tuberculous lymphadenopathy is comparable with studies conducted by Panra et al as well as the literature. But in contrast with the studies conducted by other workers like SS Ahamed, Aktar and S Bailey et al [54] who have shown male predominance.

The results of this work indicate that benign lymphadenopathy constitutes a significant proportion of findings in aspirates of enlarged lymph nodes. It is also proved that cytological examination may help to distinguish between benign and malignant types and also suggest the nature of the benign process. [33] In our study we found 8.29% cases of tuberculous lymphadenopathy and this finding was in concordance with others. These observation were correlated with studies conducted by Lake A.M & Oski FA et al. [21]

Tuberculosis is still a major public health problem in developing countries with a high mortality rate. Lymphadenitis is the most common from of extra-pulmonary tuberculosis. Fine needle aspiration diagnosis of pulmonary and extra pulmonary tuberculosis, is becoming increasingly popular as a diagnostic tool because of its simplicity, rapidity, and performance friendly nature. Mycobacteria are slow growing and hence culture is not routinely done in all laboratories. [35]

Fine needle aspiration cytology revealed granulomatous lesions, recognized by the presence of clusters of epithelioid cells scattered throughout the smear, with or without caseous necrosis. The epithelioid cells were elongated, often semi-lunar with a fine granular nuclear chromatin. Langhan's giant cells were seen either in association with epithelioid cells or singly, against an inflammatory background of neutrophils. Biopsy of lymph node revealed epithelioid cell granulomas with or without caseation suggestive of tuberculous pathology. [40]

The decreased incidence may be the result of the response of various early detection and eradication programmes conducted intensively for the past 10 years. Regarding the correlation of the clinical characteristic of lymph glands to cytological impression it was observed that reactive glands were mostly less than 1cm in size and these findings are in accordance with Bedi et al (1987) who reported lymph nodes over 1 cm size in reactive and tuberculous lesion as 28% and 90% respectively. [54]

Matted lymph nodes were seen in 60% of cases of tuberculous lymphadenitis where as discrete lymph nodes were seen in 95.3% of reactive lesion. Similar findings were observed by the other workers. They found matted lymph nodes as one of the characteristic feature of Tuberculous lymphadenitis.

The incidence of TB is 23.61% and the reactive lymphadenopathy is 43.05%. The increase incidence of reactive lymphadenopathy is well correlated with poor socio economic status, overcrowding, poor housing condition and sanitation as well the increased chances of exposure to various infections. The received lymph nodes of TB shows either a matted, non matted external contour, which on cut section shows areas of caseation necrosis and calcification. These lesions on light microscopy revealed extensive areas of caseation necrosis, atypical granulomas or full of classical epithelioid granulomas or evidence of TB by early granulomatous lesion. In our study HIV related lymphadenopathy / TB with features of burnt out follicles was not observed.

One case of Kimura's disease initially diagnosed by fine needle aspiration which on cytologic-smear revealed the presence of significant number of eosinophils in a background of lymphoid cells. Kimura's disease is a chronic inflammatory disorder of unknown etiology, presenting usually as painless subcutaneous swelling in the head and neck region or in the salivary glands frequently associated with regional lymphadenopathy. For initial diagnosis, excisional biopsy is important for the exclusion of malignant lymphoma, histocytosis X, angiolymphoid hyperplasia with eosinophilia and other reactive lymphadenopathies. [62]

Although Kimura disease has now been accepted as a distinct benign reactive process, its etiology and pathogenesis remain unclear. An allergic reaction (parasite, virus, fungi, or toxin), trauma, and abnormal autoimmune reactions have all been postulated. The presence of peripheral eosinophils, increased mast cells, and increased levels of IL5 and IgE suggests an abnormal T cell stimulation similar to a hypersensitivity-type reaction. Fine needle aspiration cytology is valuable in the diagnosis of recurrent lesions of Kimura's disease and may spare the patient from repeated biopsies. [14, 62]

In case of lymphoproliferative disorder, (lymphomas) the lymph nodes are firm discrete, shorty, non tender and usually greater than 2 cm in size. These findings are in concordance with Kenneth Gow [20], Kelly 1998, Solders 1999. In histopathological evaluation the incidence of Hodgkin's disease, which has a bimodal age distribution, with peaks in early and late adulthood, the incidence of non-Hodgkin's lymphoma increases steadily throughout life. For reasons that remain unclear, the average annual incidence of paediatric non-Hodgkin's lymphoma rose by almost 30 percent in the United States between 1973 and 1991.Among children under the age of 15 years, non-Hodgkin's lymphoma is almost twice as common in whites as in blacks and occurs two to three times more often in boys than in girls. [17]

Although no life style factors have been definitely linked to childhood lymphoma, children who have received either radiation treatment or chemotherapy for other types of cancer seem to have a higher risk of developing lymphoma later in life. [30]

Lymphomas are most often classified by how the cancer cells look under the microscope (their size and shape) and their pattern of growth within the lymph node. Size is described as large or small, and shape is described as cleaved (showing folds or indentations) or non-cleaved. The growth pattern may be either diffuse or follicular. Lymphoblastic lymphoma accounts for about 30% of lymphomas in children. It is most common in teenagers, and boys are affected twice as often as girls. [30]

Small non-cleaved non-Hodgkin lymphoma accounts for about 40% to 50% of childhood non-Hodgkin's lymphoma. It is most often seen in boys, usually around age of 5 to 10 years old. There are two types of small non-cleaved non-Hodgkins lymphoma Burkitt type and non-Burkitt type. Large cells non-Hodgkin lymphoma represents about 25% of all non-Hodgkin's lymphoma in children. The main subtypes are diffuse large B-cell lymphoma, mediastinal large B-cell lymphoma, and anaplastic large cells lymphoma.

Anaplatic large cell lymphoma usually develops from T-cells while the other 2 types usually develop from B cells.

For the diagnosis of lymphoma, fine needle aspiration provides excellent cytomorphologic material if adequately sampled. The evaluation of fine needle aspiration in patients with no previously diagnosed malignancy, or in those with suspected lymphoma, should be performed with extreme caution, taking care to obtain a clinical correlation and a confirmatory tissue biopsy, especially in cytologically suspicious cases. [33]

In our study 12 (16.67%) cases of lymphoreticular malignancies with total effacement of architecture by monoclonal proliferation of neoplastic lymphoid cells exhibit irregular vesicular nuclei and prominent nuceleoli was observed. One case of Hodgkin lymphoma, lymphocytic predominance variant with polymorphous population and mononuclear Hodgkin cells exhibiting eosinophilic nucleoli is seen. Smear diagnosis of the Hodgkin lymphoma was based on the tumour cells and the reactive cellular component. The tumour cells comprised of classic bi-or multinucleated cells, mono-nuclear Hodgkin's cells, popcorn cells, large polypoid cells and pleomorphic giant cells.

The reactive cellular component comprised of lymphocytes, histiocytes, plasmacells eosinophils, neutrophils and fibroblasts. The type of tumour cells and cellular company varied according to the subtype paralleling the tissue description.

The Lymphocyte Predominance Nodular Hodgkin's Lymphoma (LPNHL) diagnosis in smear was based on the presence of popcorn neoplastic cell with and without histiocytes and numerous lymphocytes in the background. The diagnosis of classic mixed cellularity Hodgkin's lymphoma was made on classic R-S cells with or without other variant tumour cells and a mixed infiltrate of lymphocytes, histiocytes, plasma cell, eosinophils, neutrophils and fibroblasts.

The diagnosis of nodular sclerosing Hodgkin's lymphoma was based on large multilobulated R-S cells with varying number of R-S variant cells and reactive inflammatory cells. LDHL was made on pleomorphic R-S cells with a variable number of reactive cells. Fine needle aspiration diagnosis of primary nodal Hodgkin's lymphoma is a useful, quick, cheap and reliable diagnostic procedure in experienced hands, which allows quick planning and treatment. [2]

One case of filarial inguinal lymphadenopathy (fig 23) with filarial worm surrounded by inflammatory cell infilteration and areas of congestion is seen. The lymphnode of the affected individual initially is mobile and tender, suffer bouts of lymphadenitis and lymphangitis. Later the lymphnode of these individual contain dead worms, that provoke a granulomatous inflammation admixed with eosinophils. Identification of parasites is based on morphological characteristics of the dead worms on cross section.

One clinically misdiagnosed case of lymphadenopathy reveals features of neurofibroma, identified by the spindle shaped cells which have scanty but extensively elongated cytoplasm appearing as extremely thin with lightly eosinophilic fibrillar structure. The nucleus is oval or wavy in appearance.[57] One case of Xanthogranulomatous lymphadenitis (fig 24) with features showing homogenous proliferation of histiocytic or fibrohistiocytic cells with areas of focal fibrosis and variable numbers of inflammatory cells in which the histiocytes are small with indistinct cytoplasmic borders and little mitotic activity. [15]

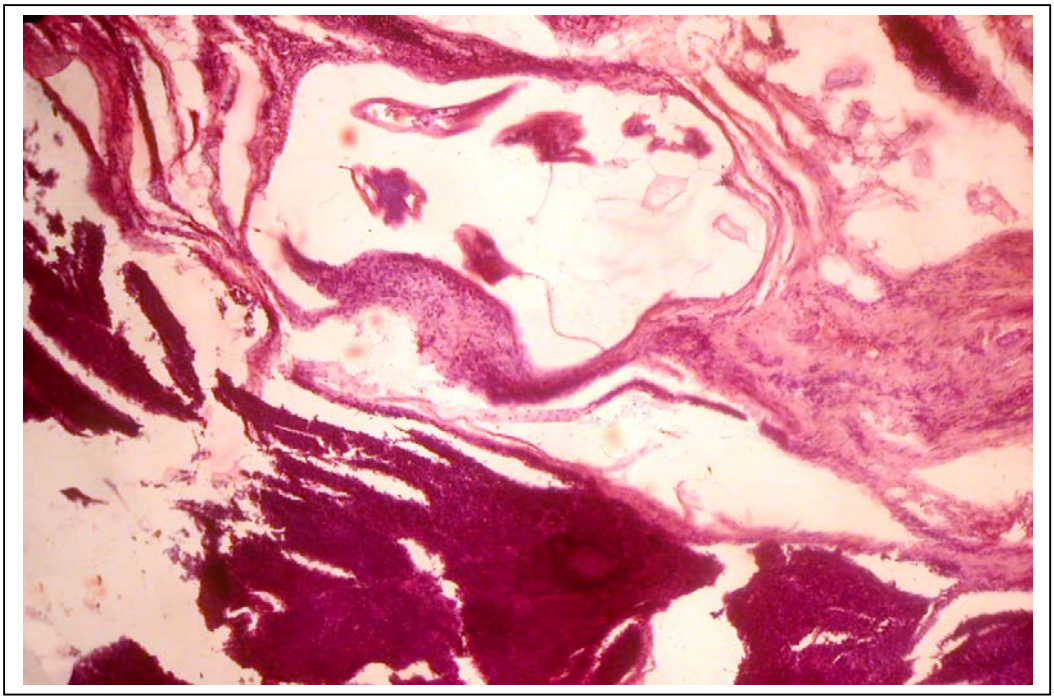


Fig 23 – Tissue section of Filarial lymphnode. Section shows a filarial worm surrounded by inflammatory cell infiltrate. (H & E, X100)

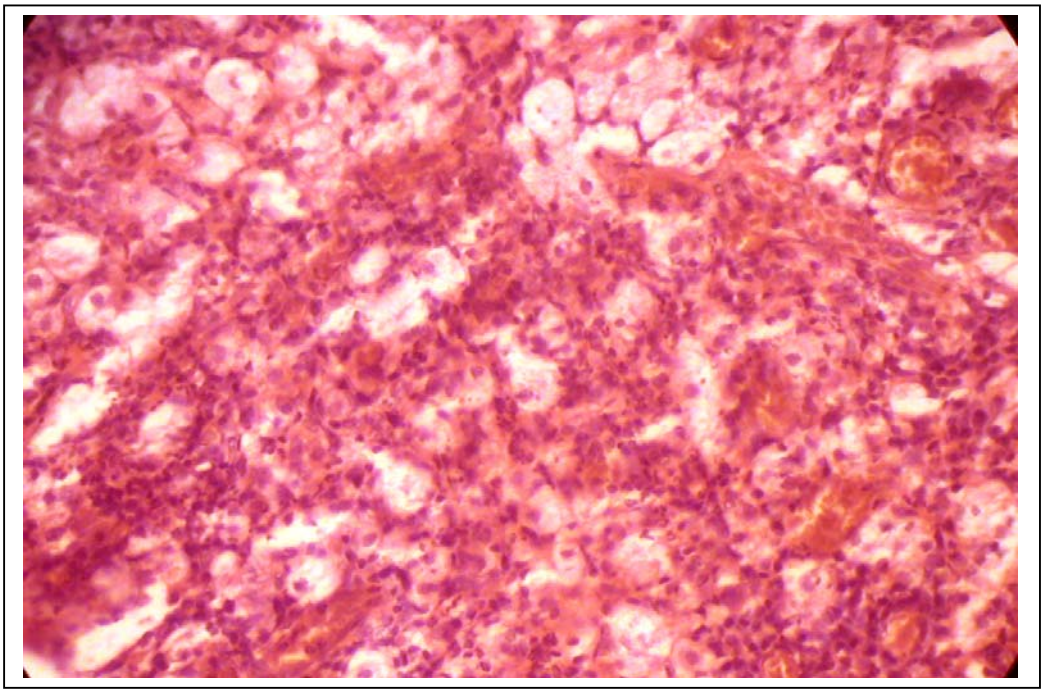


Fig 24 – Xanthogranulomatous lesion. H/E section shows homogenous proliferation of lipidised histiocytes with lymphocytes. (H & E, X400).

In our study only 16.5% cases of previous Fine Needle aspiration Evaluation is further subjected for resection and cytohistomorphological correlation is done only in these cases. Most of these cases are treated clinically and only suspected cases are biopsied. Hence out of 296 cases initially reported by fine needle aspiration as reactive only 13 cases were biopsied and 12 cases revealed features of reactive lymphadenopathy. One case initially suspected as reactive lymphadenopathy by fine needle aspiration after biopsy showed classical features of NHL. This false negative fine needle aspiration cytology evaluation may be partly due to faulty technique or partly due to inadequate material aspirated.

Similarly only 4 cases of TB lymphadenites was biopsied partially because of poor response to initial anti-tubercular treatment and partially due to patients default towards management. Out of 13 cases initially suspected as lymphoreticular malignancy 11 (84.6%) cases were biopsied and the diagnosis of lymphoma is confirmed further by reticulin stain and Immunohistochemistry.

The reticulin stain may be useful in delineating architecture for accentuating follicles and residual sinuses. In a normal node the reticulin stain shows a thicker and denser collagen fibers in the connective tissue capsule and the rest of the lymph node are supported by delicate recticular fibres that form fine meshwork throughout the node. In follicular lymphoma compression of reticulin fibres and venules occurs between the follicles. [12]

Immunohistochemistry is a method for localising specific antigens in tissue or cells based on antigen-antibody recognition. It seeks to exploit the specificity provided by binding of an antibody with its antigen at a light microscopic level. Immunohistochemical studies are very helpful for confirming a diagnosis of lymphoma versus lymphoid hyperplasia when morphologic features are inconclusive or equivocal, by demonstrating one or more of the following features : 1) abnormal immunoarchitecture; 2) aberrant immunophenotype; or 3) monotypic Ig. Although Immunohistochemistry is a method of confirmatory diagnosis it cannot be implemented in all hospitals due to lack of availability and cost. [12,15]

CONCLUSION

CONCLUSION

The present study comprising of **434** fine needle aspiration samples and subsequent HPE in 72 cases suggest the following conclusions.

1. Paediatric lymphadenopathies constitute a major health problem in semi urban areas. The incidence of non neoplastic lymphadenopathies is **94.9%** by FNA and **79%** by HPE.
2. Paediatric lymphadenopathies were more prevalent in 4 - 8 yrs of age.
3. The incidence is fairly equal in both sexes with a male predominance M : F **1 : 0.58** ratio.
4. There is an increased male preponderance for lymphomas **1 : 0.3**.
5. The lymphomas constitute 2.99% of total lymphadenopathies.
6. Of the lymphomas non Hodgkin's lymphoma comprise 92.3% and Hodgkins lymphoma 7.7%.
7. Non neoplastic lesions were predominant with reactive hyperplasia followed by tuberculous lymphadenopathy.
8. Tuberculous lymphadenopathy still constitute a major health problem with the incidence of 8.3%.

9. Initial evaluation by special stain (Reticulin and PAS) still proves of value.
10. Immunohistochemistry remains in its place as final confirmative tool.
11. Initial fine needle aspiration evaluation of paediatric lymphadenopathy reveals high specificity and sensitivity and should be considered as a first diagnostic method.

Fine needle aspiration cytology is an increasingly popular method for evaluating a variety of masses and can readily be applied to paediatric patients. It is a safe procedure with no or minimal morbidity and mortality. Other advantages include its relatively low cost, its accuracy, and the rapidity with which a diagnosis can be rendered. Fine-needle aspiration biopsy need not replace the open surgical biopsy, but it can be a valuable tool for screening both palpable and nonpalpable masses, to follow up patients with a history of malignancy, and as a means of doing a biopsy on patients who are at an increased risk from surgical procedures. Thus fine needle aspiration cytology can be recommended as a first line of investigation in the diagnosis of lymphadenopathy in paediatric age group.

However the advantages of fine needle aspiration outweigh, the perceived limits such as centre dependence on pathologists who are accustomed to making diagnoses on fine needle aspiration alone, the potential risk of seeding a tract with malignancy and the continued need for atleast conscious sedation in most children has not been established. The diagnostic accuracy with fine needle aspiration in lymphoma subtyping does not appear to depend on a particular morphologic scheme. To improve the reliability of a smear for a primary lymphoma diagnosis, a variety of adjunct technique have been proposed including cytochemistry, immunohistochemistry, flow cytometry and molecular diagnosis.

APPENDIX

APPENDIX – I

ROUTINE HEMATOXYLIN AND EOSIN STAIN

1. Sections to water.

2. Harris's hematoxylin for 15 minutes.

3. Rinse in tap water.

4. Differentiate in acid alcohol – 3 to 10 quick dips.

5. Wash in tap water very briefly.

6. Dip in ammonia water (for 10 – 20 seconds) saturated lithium carbonate until sections are bright blue.

7. Wash in running tap water for 10 – 20 minutes.

8. Stain with eosin for 15 seconds to 2 minutes depending on the age of the eosin and the depth of counter stain required.

9. 95% alcohol.

10. Absolute alcohol – at least 2 changes.

11. Xylene-2 changes.

12. Mount in DPX mountant.

APPENDIX – II

PERIODIC ACID SCHIFF TECHNIQUE

Solutions required

1. 1.5% periodic acid.
2. Mayer's haemalum.
3. Sulphurous acid

Sodium metabisulphite 10%	6 ml
N/I hydrochloric acid 10%	5 ml
Distilled water	100 ml

4. Schiffs reagent

Basic fuchsin	1 gm
Sodium metabisulphite, anhydrous	1 gm
Distilled water	200 ml
N/I hydrochloric acid	20 ml

Boil the distilled water, add basic fuchsin and stir, cool to 50^{o} C.

Then filter and add hydrochloric acid, cool to 25^{o} C and add the sodium metabisulphite.

This solution is ready for use when its become nearly colourless, which may take up to two days in the dark.

(Alternatively activated charcoal may be added to the solution, shaken and filtered. The solution is then ready for use.)

When the solution becomes recoloured it should be discarded.

Technique

1.	Section to water	
2.	Periodic acid 0.5%	5 minutes
3.	Rinse is distilled water	
4.	Schiff's reagent	15 minutes
5.	Rinse in the three fresh changes of sulphurous acid	
6.	2 minutes in each change	6 minutes
7.	Wash in running tap water	5 minutes
8.	Counterstain in Mayer's haemalum	30 seconds
9.	Wash in running tap water	5 minutes
10.	Dehydrate, clear and mount	

Results

Positive material: reddish – purple

Nuclei: faint grey

APPENDIX – III

GOMORI'S RETICULIN IMPREGNATION TECHNIQUE

(Modification of perdrau)

Solutions required:

1. 1% potassium permanganate.
2. 2% potassium metabisulphite or sodium meta trisulphite.
3. 2% ferric ammonium sulphate.
4. 10% formalin neutral.
5. 0.2% gold chloride.
6. 2.5% sodium thiosulphate.
7. 10% potassium hydroxide.
8. Ammoniacal silver solution.

10% silver nitrate	10 ml
10% sodium hydroxide	2 ml

Mix the silver nitrate by drop until the precipitate first formed just dissolves, then add sodium hydroxide 10% drop by drop until the new precipitate hardly dissolved with shaking. Add an equal volume of distilled water and filter.

Technique:

1.	Section to water	
2.	Oxidise in potassium permanganate 10%	2 minutes
3.	Rinse in water	1 minute
4.	Decolorise in potassium metabisulphite	1 minute
5.	Prolonged Wash in Water	
6.	Sensitise in ferricammonium sulphate 2 percent	1 minute
7.	Prolonged Wash in tap Water followed by 2 Changes of distilled water.	
8.	Impregnate in ammoniacal silver solution	1 minute
9.	Rinse in distilled water	5 seconds
10.	Reduce the silver in formalin 10 percent by holding the slide at an acute angle and pouring the formalin down it. Then resting the slide section uppermost on the cold staining rack flood with formalin	3 minutes
11.	Wash in tap water	
12.	Tone in gold chloride 0.2 percent	5-10 minutes
13.	Rinse in distilled water	
14.	Treat with potassium metabisulphate	1 minute
15.	Rinse in distilled water	
16.	Treat with sodium thiosulphate 2.5 percent	1-2 minute
17.	Wash in water dehydrate, clear and mount	

Results:

Recticulin : black

Nuclei-greyish

Collagen : dark grey-purple

Note:

After stage 9, it is advisable to hold the section at an acute angle when first applying a fresh solution so that any contaminating deposit that forms will not settle on the section.

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APPENDIX – IV

MAY GRUNWALD GIEMSA

1. Air dry the smear
2. Fix by immersing in a jar of methnol - 5-10 minutes
3. Transfer to a staining jar containing
   MAY GRUNWALD stain freshly
   diluted with an equal volume of buffered water 15 minutes
4. Transfer the slide without washing to a jar
   containing giemsa stain freshly diluted with 10-15 minutes
   9 volume of buffered water
5. Wash with buffered water
6. Dry and mount.

APPENDIX – V

IMMUNO-HISTOCHEMISTRY

Method Used:

1. 5μ thick sections were cut from the blocks received (diagnosed as lymphomas) on slides coated with Chrome alum gelatin.
2. Slides were dewaxed and dehydrated in graded alcohol.
3. Slides were immersed in 0.3% H_2O_2 for 20 minutes to block endogenous peroxidase activity.
4. Washed in phosphate buffered saline (PBS).
5. Incubated in Primary Antibody & Pan B (CD20, clove L26 DAKO) and PAN T (CD3, Polyclonal, DAKO) for 20 minutes.
6. Washed in PBS.
7. Biotinylated link was applied for 20 minutes.
8. Washed in PBS.
9. Incubated in streptavin-biotin complex.
10. Washed in PBS.
11. DAB was used as chromagen.
12. Washed and can be stained with haematoxylin
13. Mounted with coverslip

Control run –was tonsil.

APPENDIX – VI

ZIEHL- NEELSEN (ZN) STAINS FOR MYCOBACTERIUM BACILLUS

Solutions

Carbol-fuchsin

1 g basic fuchsin dissolved in 10 ml of absolute alcohol; add 100 ml of 5% aqueous phenol. Mix well and filter before use.

Acidified methylene blue:

Method:

1. Deparaffinize and rehydrate through graded alcohols to distilled water.
2. Flood sections with freshly filtered carbol-fuchsin and heat to steaming with intermittent flaming, 15 minutes, or stain in Coplin jar at 56°-60°C, 30 min.
3. Wash well in tap water.
4. Differentiation in 1% acid alcohol, 10 min.
5. Wash well in tap water
6. Counter stain in methylene blue solution, 30 seconds.
7. Blot and differentiate by alternate dehydration and rehydration until the back ground is a delicate pale blue.
8. Dehydrate, clear and mount

Results:

Mycobacteria – Red

Background – Pale blue.

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BIBLIOGRAPHY

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MASTER CHART

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
1	F12/03	11	M	8502	Cervical	Reactive Hyperplasia	Not done
2	F43/03	6	M	531584	Cervical	Supperative adenities	Not done
3	F60/03	8	F	746126	Cervical	Non specific lymphadenitis	Not done
4	F88/03	8	M	858698	Cervical	TB adenitis	Not done
5	F112/03	3	M	850319	Cervical	Reactive Lymphadenitis	Not done
6	F113/03	10	F	952	Cervical	Reactive Lymphadenitis	Not done
7	F125/03	12	F	41895	Submandibular	Non specific lymphadenitis	Not done
8	F152/03	12	F	6146	Cervical	Only blood + blood components	Not done
9	F174/03	12	M	34566	Cervical	Non specific lymphadenitis	Not done
10	F178/03	10	M	673205	Cervical	Reactive lymphnode	Not done
11	F185/03	7	F	860530	Cervical	Tuberculous lymphadenitis	Not done
12	F192/03	7	M	861297	Axillary	Non specific lymphadenitis	Not done
13	F208/03	5	M	860727	Axillary	Lymphoproliferative disorder	352/03 NHL
14	209/03	6	M	861009	Axillary	Non specific lymphadenitis	Not done
15	F220/03	8	M	125	Cervical	Non specific lymphadenitis	Not done
16	F221/03	7	F	861864	Cervical	Reactive Hyperplasia	Not done
17	F230/03	5	M	87348	Cervical	Non specific lymphadenitis	Not done
18	F238/03	8	M	71855	Cervical	Reactive hyperplasia	Not done
19	F244/03	7	M	1612	Cervical	Supperative adenities	Not done
20	F247/03	7	M	893	Cervical	Non specific lymphadenitis	Not done
21	F269/03	1 1/4	M	863056	Axillary & Cervical	Reactive hyperplasia	Not done
22	F340/03	8	M	865162	Cervical	Reactive hyperplasia	Not done
23	F347/03	7	M	108467	Cervical	Early TB lesion	1747/03 Xantho granulomatous lesion
24	F381/03	6	F	865761	Cervical	Non specific lymphadenitis	Not done
25	F399/03	4	M	866592	Cervical	TB lymphadenitis	658/03 Caseating TB
26	F423/03	6	M	866627	Cervical	Non specific lymphadenitis	Not done
27	F456/03	4	M	140684	Cervical	Reactuve hyperplasia	Not done
28	F458/03	5	M	868389	Cervical	Lympho proliferative	1135/03 Lymphoma
29	F492/03	5	M	3577	Cervical	Non specific lymphadenitis	Not done
30	F510/03	4	M	161881	Cervical	Non specific lymphadenitis	Not done
31	F518/03	3 1/2	F	3596	Axillary & Cervical	Caseating TB lymphadenitis	Not done
32	F570/03	3 1/2	F	8619107	Cervical	Granulomatous TB lymphadenitis	Not done
33	F610/03	6	M	869349	Cervical	? TB lesion	785/03 Atypical granuloma
34	F623/03	6	M	486/03	Cervical	Reactive hyperplasia	Not done
35	F669/03	8	M	14452	Cervical	Non specific lymphadenitis	Not done
36	F682/03	8	M	875210	Cervical	Lymphoma	Not done
37	F703/03	5	F	874903	Cervical	Reactive lymphadenitis	351/03 Reactive
38	F705/03	5	M	4697	Cervical	Reactive lymphadenitis	Not done
39	F738/03	5	M	876955	Axillary	Inadequate	Not done
40	F739/03	8	M	674148	Cervical	Reactive lymphadenitis	Not done
41	F762/03	12	F	4794	Cervical	Reactive lymphadenitis	Not done
42	F769/03	9	M	877791	Axillary	Lympho proliferative	2663/03 Lymphoma
43	F773/03	3	M	674161	Cervical	Reactive lymphadenitis	Not done
44	F774/03	2	M	877832	Cervical	Non specific adenitis	1202/03 Reactive
45	F779/03	3	M	877821	Cervical	Reactive	Not done
46	F785/03	10	M	877946	Cervical	Reactive	Not done
47	F788/03	10	M	471/03	Cervical	Granulomatous TB lymphadenitis	Not done
48	F818/03	9	F	879019	Cervical	Leukemic infilteration / NHL	1232/03 NHL
49	F830/03	7	M	1580	Cervical	Reactive hyperplasia	Not done
50	F882/03	4	F	2093	Cervical	Reactive adenitis	Not done
51	F896/03	4 1/2	M	15659	Cervical	Reactive adenitis	F896/03 Reactive

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
52	F980/03	9	M	883209	Cervical	Reactive	Not done
53	F990/03	12	M	674193	Cervical	Reactive	Not done
54	F1011/03	5	M	7440	Cervical	Non specific adenitis	Not done
55	F1029/03	9	M	11833	Cervical	Consistent with lymphcyst	Not done
56	F1052	7	M	675124	Inguinal	Non specific lymphadenitis	Not done
57	F1102/03	9	F	4261/03	Cervical	Caseating TB lymphadenitis	1197/2004 Caseating
58	F1145/03	3	F	9048	Cervical	Supperative adenities	Not done
59	1149/03	3	M	6023	Cervical	Reactive adenitis	Not done
60	F1181/03	5	M	889102	Cervical	Reactive lymphadenitis	266/04 NHL
61	F1206/03	3	F	4839/03	Cervical	Caseating TB lymphadenitis	1711/04 TB
62	F1222/03	9	F	21618	Cervical	Reactive hyperplasia	Not done
63	F1235/03	8	F	194282	Cervical	Reactive hyperplasia	Not done
64	F1242/03	4	M	21018	Axillary	Non specific lymphadenitis	Not done
65	F1340/03	10	F	26218	Cervical	Reactive lymphadenitis	Not done
66	F1342/03	8	F	850564	Cervical	Reactive lymphadenitis	19/03 Reactive
67	F1352/03	6	F	6812	Cervical	Reactive adenitis	Not done
68	1362/03	3	F	22713	Cervical	Caseating TB lymphadenitis	Not done
69	F1373/03	10	M	5077/03	Axillary	Reactive hyperplasia	Not done
70	F1386/03	3	M	294299	Cervical	Reactive lymphadenitis	Not done
71	F1407/03	5	M	676322	Cervical	Reactive adenitis	Not done
72	F1412/03	7	M	293503	Cervical	Granulomatous TB lymphadenitis	Not done
73	F1428/03	6	M	293456	Cervical	Non specific adenitis	Not done
74	F1436/03	3	M	25645	Cervical	Lympho proliferative	79/05 NHL
75	F1458/03	5	M	9096	Cervical	Supperative adenities	Not done
76	F1466/03	6	M	27306	Cervical	Non specific lymphadenitis	Not done
77	F1482/03	2 1/2	M	896585	Cervical	Reactive adenitis	Not done
78	F1489/03	10	M	300990	Inguinal	Non specific adenitis	Not done
79	F1519/03	4 1/2	F	RMH	? Lymphnode	Small Blue round cell tumor	Not done
80	F1536/03	7	F	898940	Axillary	Aspirate negative	Not done
81	F1555/03	6	M	304261	Cervical	Non specific adenitis advised	Not done
82	F1557/03	11	M	6154	Inguinal	Granulomatous TB lymphadenitis	Not done
83	F1562/03	5	M	296554	Cervical	Only blood + blood components	Not done
84	F1601/03	6	M	67373	Cervical	TB lymphadenitis	Not done
85	F1627/03	12	M	32480	Cervical	Reactive adenitis	Not done
86	F1632/03	2 1/2	F	676386	Cervical	Reactive adenitis	Not done
87	F1744/03	8	F	52665	Cervical	Reactive lymphadenitis	Not done
88	F1756/03	7	M	964604	Cervical	Reactive adenitis	Not done
89	F10/04	12	M	192	Cervical	Non specific lymphadenitis	Not done
90	F13/04	5	F	997837	Cervical	Reactive hyperplasia of lymphnode	Not done
91	F47/04	8	M	905709	Cervical	Atypical granulomas	Not done
92	F72/04	9	M	31884	Cervical	Reactive adenitis	Not done
93	F74/04	12	F	20605	Cervical	Granulomatous TB lymphadenitis	Not done
94	F125/04	12	M	6164	Cervical	Caseating TB lymphadenitis	Not done
95	F135/04	5	M	44545	Cervical	Reactive adenitis	Not done
96	F144/04	10	F	47778	Cervical	Caseating TB lymphadenitis	Not done
97	F160/04	3 1/2	M	47796	Cervical	Reactive adenitis	Not done
98	F216/04	10	M	909516	Cervical	Reactive adenitis	Not done
99	F270/04	5	M	911010	Submandibular	Reactive adenitis	Not done
100	F295/04	7	M	909387	Axillary	Reactive lymphadenitis	Not done
101	F316/04	2 1/2	M	82676	Cervical	Reactive lymphadenitis	Not done
102	F340/04	6	M	85129	Cervical	Reactive lymphadenitis	Not done
103	F345/04	8	F	911902	Cervical	Aspirate scanty	Not done
104	F346/04	9	M	63727	Cervical	Reactive lymphadenitis	Not done

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
105	F355/04	12	M	911493	Axillary	Reactive lymphadenitis	Not done
106	F357/04	6	F	9837	Cervical	Reactive lymphadenitis	Not done
107	F359/04	10	M	88569	Cervical	Reactive lymphadenitis	Not done
108	F361/04	6	M	96343	Cervical	Reactive	Not done
109	F371/04	6	F	912368	Cervical	Non specific lymphadenitis	Not done
110	F375/04	8/12	M	994104	Axillary	Suppurative adenitis	610/04 Reactive
111	F396/04	3 1/2	M	2009	Cervical	Reactive lymphadenitis	Not done
112	F424/04	7	M	108233	Cervical	Reactive lymphadenitis	Not done
113	F426/04	3	F	96362	Axillary	Reactive lymphadenitis	Not done
114	F440/04	12	M	602	Axillary	Reactive lymphadenitis	380/04 Reactive
115	F444/04	10	M	792893	Cervical	Supperative lesions abscess	Not done
116	F474/04	10	M	1234	Inguinal	Non specific lymphadenitis	Not done
117	F496/04	7	F	119788	Axillary	Reactive lymphadenitis	Not done
118	F513/04	10	M	120165	Cervical	TB adenitis	1141/04 TB
119	F531/04	2 3/4	M	126186	Cervical	Non specific lymphadenitis	Not done
120	F544/04	5	F	2381	Cervical	Reactive lymphadenitis	Not done
121	F545/04	6	F	130875	Cervical	Reactive adenitis	Not done
122	F573/04	6	F	916543	Cervical	Reactive adenitis	Not done
123	F617/04	3	M	131027	Cervical	Reactive lymphadenitis	Not done
124	F620/04	8	M	18210	Cervical	Reactive lymphadenitis	Not done
125	F653/04	6	M	1507283	Cervical	Reactive lymphadenitis	Not done
126	F666/04	3	F	19146	Cervical	Reactive lymphadenitis	Not done
127	F673/04	7	M	154089	Cervical	Reactive lymphadenitis	Not done
128	F686/04	5	M	153858	Cervical	Reactive lymphadenitis	Not done
129	F702/04	4	F	150975	Cervical	Reactive lymphadenitis	Not done
130	F710/04	5	F	168004	Cervical	Reactive lymphadenitis	Not done
131	F714/04	3	M	165801	Cervical	Reactive lymphadenitis	Not done
132	F720/04	12	F	165995	Cervical	Reactive lymphadenitis	Not done
133	F735/04	8	M	153804	Cervical	Reactive lymphadenitis	Not done
134	F750/04	8	M	3224	Cervical	Blood component	Not done
135	F751/04	12	F	168500	Cervical	Reactive lymphadenitis	Not done
136	F752/04	9	M	2058	Cervical	Reactive lymphadenitis	Not done
137	F772/04	8	M	3236	Cervical	Reactive hyperplasia	Not done
138	F812/04	4 1/2	M	7952	Cervical	Reactive lymphadenitis	Not done
139	F818/04	2	F	101956	Cervical	Rosai Dorfman syndrome	Not done
140	F829/04	12	M	23022	Cervical	Reactive lymphadenitis	Not done
141	F882/04	3 1/2	M	135266	Cervical	Reactive lymphadenitis	Not done
142	F866/04	5	M	2551	Cervical	Reactive lymphadenitis	Not done
143	F939/04	9/12	F	215681	Cervical	Reactive lymphadenitis	Not done
144	F965/04	12	M	1504	Cervical	Reactive hyperplasia	Not done
145	F982/04	1 1/2	M	217510	Cervical	Granulomatous TB lymphadenitis	Not done
146	F1006/04	12	F	28889	Cervical	Reactive lymphadenitis	Not done
147	F1027/04	6	M	299270	Cervical	Reactive lymphadenitis	Not done
148	F1060/04	9	M	679735	Cervical	Reactive adenitis	Not done
149	F1091/04	7	F	214991	Submandibular	Caseating TB lymphadenitis	Not done
150	F1108/04	6	M	247852	Cervical	Reactive lymphadenitis	Not done
151	F1115/04	8	M	247851	Cervical	Reactive lymphadenitis	Not done
152	F1132/04	4 1/2	M	3338	Cervical	Lymphangioma	Not done
153	F1148/04	10	F	32513	Cervical	Reactive lymphadenitis	Not done
154	F1149/04	11	F	247603	Cervical	Reactive lymphadenitis	Not done
155	F1156/04	4	F	2532220	Cervical	Reactive lymphadenitis	Not done
156	F1172/04	5 1/2	M	679773	Inguinal	Suppurative adenitis	Not done
157	F1184/04	11	M	265940	Cervical	Suppurative adenitis	Not done
158	F1187/04	5	F	258648	Cervical	TB Adenitis	Not done
159	F1211/04	13/4	M	266388	Cervical	Reactive adenitis	Not done
160	F1230/04	3 1/2	F	5065	Cervical	TB adenitis	Not done
161	F1338/04	2	M	934148	Cervical	Early TB lesion	Not done

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
162	F1356/04	8	M	307310	Axillary	Non specific lymphadenitis	Not done
163	F1359/04	12	F	287738	Cervical	Reactive lymphadenitis	Not done
164	F1360/04	6	M	218104	Cervical	Reactive lymphadenitis	Not done
165	F1372/04	3	M	40510	Cervical	Reactive lymphadenitis	Not done
166	F1406/04	2	M	2342	Inguinal	Caseating TB lymphadenitis	Not done
167	F1427/04	9	M	310282	Cervical	Reactive lymphadenitis	Not done
168	F1429/04	8	M	5274	Cervical	Reactive hyperplasia	1610/05 Reactive
169	F1469/04	5	M	40712	Cervical	Reactive lymphadenitis	Not done
170	F1483/04	7	M	29987	Cervical	Reactive lymphadenitis	Not done
171	F1541/04	12	M	42275	Cervical	Caseating TB lymphadenitis	Not done
172	F1547/04	7	F	938931	Cervical	Reactive hyperplasia	Not done
173	F1549/04	4 1/2	M	3050	Cervical	Reactive lymphadenitis	Not done
174	F1555/04	8	F	329935	Cervical	Reactivelymphadenitis	Not done
175	F1068/04	9	M	43178	Cervical	Reactive adenitis	Not done
176	F1569/04	11	F	5872	Cervical	Reactive adenitis	Not done
177	F1583/04	3 1/2	F	341139	Cervical	Reactive adenitis	Not done
178	F1584/04	8	F	35112	Axillary	Rhobdomyosarcoma	Not done
179	F1609/04	5	M	135	Cervical	Reactive lymphadenitis	Not done
180	F1612/04	10	F	6192	Cervical	Reactive lymphadenitis	Not done
181	F1621/04	12	M	6203	Cervical	Reactive lymphadenitis	Not done
182	F1624/04	6	M	361368	Cervical	Reactive lymphadenitis	Not done
183	F1641/04	2 1/2	M	173955	Cervical	Reactive lymphadenitis	Not done
184	F1644/04	4 1/2	M	364086	Cervical	Reactive lymphadenitis	Not done
185	F1695/04	12	M	814818	Axillary	Suppurative adenitls	Not done
186	F1713/04	2 3/4	F	493987	Cervical	Reactive lymphadenitis	Not done
187	F1728/04	12	F	379560	Cervical	Caseating TB lymphadenitis	Not done
188	F1744/04	9	M	6808	Cervical	TB lymphadenitis	Not done
189	F1746/04	2	F	385732	Cervical	Reactive lymphadenitis	Not done
190	F1771/04	12	M	6749	Cervical	Reactive lymphadenitis	Not done
191	F1796/04	7	F	3502	Cervical	Reactive lymphadenitis	Not done
192	F1799/04	8	M	396713	Cervical	Reactive lymphadenitis	Not done
193	F1830/04	5	M	306319	Cervical	Reactive lymphadenitis	Not done
194	F1891/04	12	F	385589	Inguinal	Reactive lymphadenitis	Not done
195	F1892/04	7	F	7045	Cervical	Reactive lymphadenitis	Not done
196	F1894/04	5 1/2	M	3612	Cervical	Reactive lymphadenitis	Not done
197	F1901/04	3	M	5113/04	Cervical	Reactive lymphadenitis	Not done
198	F1917/04	6	F	3693	Cervical	Reactive lymphadenitis	Not done
199	F1930/04	12	M	422980	Cervical	Reactive lymphadenitis	Not done
200	F1934/04	9	M	3686	Cervical	Reactive lymphadenitis	Not done
201	F1946/04	4	F	29916	Cervical	Reactive lymphadenitis	Not done
202	F1959/04	11	F	7236	Cervical	Reactive lymphadenitis	Not done
203	F1967/04	9	F	2968	Cervical	Suppurative adenitis	Not done
204	F1970/04	8	M	3795	Cervical	Reactive lymphadenitis	Not done
205	F1978/04	8	F	7240	Cervical	Non specific lymphadenitis	Not done
206	F1979/04	5	M	3670	Cervical	Reactive lymphadenitis	Not done
207	F2003/04	6	M	436552	Inguinal	Reactive lymphadenitis	Not done
208	F2006/04	5	M	5934	Inguinal	Reactive lymphadenitis	Not done
209	F2015/04	10	F	66678	Cervical	Granulomatous lesion	Not done
210	F2016/04	11	F	441410	Cervical	Reactive lymphadenitis	Not done
211	F2033/04	11	M	6000/04	Cervical	Reactive lymphadenitis	Not done
212	F2038/04	7	M	55321	Submandibular	Non specific lymphadenitis	Not done
213	F2044/04	11	M	55671	Cervical	Reactive lymphadenitis	Not done
214	F2049/04	3 1/2	M	6059/04	Cervical	Reactive lymphadenitis	Not done
215	F2072/04	7	M	6154	Cervical	Reactive lymphadenitis	2562/05 Reactive
216	F2093/04	11	F	69475	Cervical	Suppurative adenitis	Not done
217	F2106/04	2	M	479951	Cervical	Reactive lymphadenitis	Not done
218	F2107/04	2 1/2	F	306384	Cervical	Reactive lymphadenitis	Not done
219	F2145/04	1 1/2	M	6346	Cervical	Reactive lymphadenitis	1648/05 Reactive

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
220	F2149/04	6	M	951607	Axillary	Blood component only	2578/05 Reactive
221	F2166/04	7	F	4993	Cervical	Reactive lymphadenitis	Not done
222	F2177/04	9	F	5006	Cervical	Reactive lymphadenitis	Not done
223	F2212/04	6	M	6499	Inguinal	Reactive lymphadenitis	Not done
224	F2215/04	7	F	6500	Cervical	Non specific lymphadenitis	Not done
225	F2216/04	4	M	6442/04	Cervical	Non specific adenities	Not done
226	F2217/04	10/12	M	6339/04	Cervical	Reactive lymphadenitis	Not done
227	F2224/04	6	M	506468	Cervical	Reactive hyperplasia	Not done
228	F2233/04	3	M	509572	Submandibular	Reactive lymphadenitis	Not done
229	F2240/04	3 1/2	M	509983	Cervical	Granulomatous TB lymphadenitis	Not done
230	F2249/04	5	F	6597	Cervical	Reactive lymphadenitis	Not done
231	F2255/04	7/12	M	6606	Cervical	Suppurative adenitis	Not done
232	F2268/04	4	F	6640	Cervical	Reactive lymphadenitis	Not done
233	F2269/04	7	M	4798	Cervical	Neuro fibroma	16/05 Neuro fibroma
234	F2280/04	5	M	6690	Cervical	Reactive lymphadenitis	Not done
235	F2322/04	6	M	526736	Cervical	Reactive lymphadenitis	Not done
236	F2331/04	12	M	6749	Cervical	Reactive lymphadenitis	Not done
237	F2333/04	4	F	9380	Cervical	Reactive lymphadenitis	Not done
238	F2334/04	5	M	9261	Cervical	Reactive lymphadenitis	Not done
239	F2345/04	10	M	6675	Inguinal	Reactive lymphadenitis	Not done
240	F2348/04	8	F	6774/04	Cervical	Reactive lymphadenitis	Not done
241	F2350/04	9	F	521137	Cervical	Granulomalous lesion	Not done
242	F2352/04	7	F	4940	Cervical	Reactive lymphadenitis	Not done
243	F2362/04	8	M	6826	Cervical	Reactive lymphadenitis	Not done
244	F2375/04	6	F	9530	Cervical	Reactive lymphadenitis	Not done
245	F2383/04	10	M	6815	Inguinal	Non specific adenitis	Not done
246	F2384/04	1	M	6874	Cervical	Early granulomalous lesion	Not done
247	F1/05	2	M	6895	Cervical	Suppurative adenitis	Not done
248	F20/05	9	F	135	Cervical	Reactive lymphadenitis	Not done
249	F25/05	4	M	954492	Cervical	Reactive lymphadenitis	95/05 Reactive
250	F27/05	3	M	261	Cervical	Reactive lymphadenitis	Not done
251	F28/05	6	F	5341/05	Cervical	Non specific lymphadenitis	Not done
252	F39/05	3	F	49/05	Cervical	TB adenitis	Not done
253	F47/05	4	M	957048	Cervical	Reactive hyperplasia	Not done
254	F48/05	3	M	831	Cervical	Reactive hyperplasia	Not done
255	F49/05	3 1/2	F	306946	Cervical	Reactive hyperplasia	Not done
256	F78/05	8	M	958557	Cervical	Granulomalous lesion	Not done
257	F79/05	6	M	53973	Cervical	Reactive lymphadenitis	Not done
258	F95/05	3	F	220/05	Cervical	Reactive lymphadenitis	Not done
259	F109/05	7	M	7802	Cervical	Reactive lymphadenitis	Not done
260	F124/05	7	M	35822	Cervical	Reactive lymphadenitis	Not done
261	F137/05	10	M	2167	Cervical	Granulomatous lymphadenitis	Not done
262	F140/05	8	M	416	Cervical	Reactive lymphadenitis	Not done
263	F146/05	12	M	3753	Cervical	Reactive lymphadenitis	Not done
264	F159/05	10	M	4981	Inguinal	Reactive lymphadenitis	Not done
265	F164/05	1 1/3	F	6174	Cervical	Reactive lymphadenitis	Not done
266	F169/05	12	F	6390	Cervical	Follicular hyperplasia	Not done
267	F180/05	5	M	807	Cervical	Reactive lymphadenitis	Not done
268	F187/05	2 3/4	F	407	Cervical	Reactive lymphadenitis	Not done
269	F211/05	6	M	410	Cervical	Reactive lymphadenitis	Not done
270	F221/05	9	M	961367	Axillary	Reactive lymphadenitis	Not done
271	F246/05	6	F	60922	Cervical	Reactive lymphadenitis	Not done
272	F247/05	4	M	60920	Cervical	Reactive lymphadenitis	Not done
273	F256/05	6/12	M	746/05	Axillary	Granulomatous TB lymphadenitis	Not done
274	F270/05	7	M	60925	Inguinal	Granulomatous lymphadenitis	Not done
275	F298/05	7 1/2	M	1938	Cervical	Reactive lymphadenitis	Not done

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
276	F322/05	5	F	833	Cervical	Reactive lymphadenitis	Not done
277	F328/05	9	M	907271	Cervical	Reactive lymphadenitis	Not done
278	F362/05	4 1/2	M	2132	Cervical	Reactive lymphadenitis	Not done
279	F382/05	8	F	99759	Cervical	Reactive lymphadenitis	Not done
280	F383/05	10	M	780	Cervical	Reactive lymphadenitis	Not done
281	F386/05	11	F	950	Cervical	Reactive lymphadenitis	Not done
282	F388/05	2 1/2	M	965160	Cervical	Lympho proliferative	548/05 NHL
283	F390/05	7	F	85920	Cervical	Reactive lymphadenitis	Not done
284	F403/05	4 1/2	M	937	Cervical	Angiolymphoid hyperplasia	546/05 Kimura
285	F404/05	8	F	95973	Cervical	Caseating TB lymphadenitis	Not done
286	F412/05	10 1/2	F	965	Cervical	Reactive lymphadenitis	Not done
287	F429/05	7	M	985	Cervical	Reactive lymphadenitis	Not done
288	F430/05	12	M	2342	Cervical	Non specific adenitis	Not done
289	F431/05	9	M	973	Cervical	Reactive lymphadenitis	Not done
290	F436/05	6	F	2378	Cervical	Reactive lymphadenitis	Not done
291	F438/05	3 1/2	M	1004	Submandibular	Reactive lymphadenitis	Not done
292	F458/05	7	F	107122	Cervical	Reactive lymphadenitis	Not done
293	F467/05	7	M	965888	Cervical	PT not cooprate	Not done
294	F468/05	8	M	94946	Cervical	Reactive lymphadenitis	Not done
295	F484/05	10	M	965732	Submandibular	Reactive lymphadenitis	Not done
296	F500/05	4	F	968532	Axillary	Caseating TB lymphadenitis	Not done
297	F528/05	5	F	968455	Cervical	Lympho proliferative disorder	780/05 Lymphoproliferative
298	F530/05	12	M	968992	Submandibular	Non specific adenitis	Not done
299	F542/05	6	M	123711	Cervical	Reactive adenitis	Not done
300	F543/05	7	F	123710	Cervical	Reactive adenitis	Not done
301	F546/05	4 1/2	M	1193	Cervical	Reactive adenitis	Not done
302	F564/05	5	F	833	Cervical	Reactive adenitis	Not done
303	F569/05	5	F	2848	Cervical	Reactive adenitis	Not done
304	F575/05	3	F	126102	Axillary	Reactive adenitis	Not done
305	F582/05	5	M	14461	Cervical	Reactive adenitis	Not done
306	F586/05	12	M	17467	Cervical	Suppurative lymphadenitis	Not done
307	F587/05	10	F	1014	Cervical	Reactive lymphadenitis	Not done
308	F606/05	5	M	113831	Cervical	Reactive lymphadenitis	Not done
309	F625/05	6	F	3190	Cervical	Follicular hyperplasia	Not done
310	F628/05	9	M	119352	Cervical	Reactive lymphadenitis	1611/05 Reactive
311	F647/05	3 1/2	M	970975	Axillary	Lympho proliferative disorder	1941/05
312	F648/05	7	M	141019	Cervical	Suppurative lymphadenitis	Not done
313	F660/05	5	M	141497	Cervical	Reactive lymphadenitis	Not done
314	F661/05	5	M	588	Cervical	Reactive lymphadenitis	Not done
315	F672/05	5	F	141704	Axillary	Lympho proliferative disorder	Not done
316	F675/05	11	F	5645	Cervical	Reactive lymphadenitis	Not done
317	F695/05	1 1/2	F	1793	Submandibular	Non specific adenitis	Not done
318	F708/05	10	M	971897	Axillary	Lympho proliferative lesion	466/05 NHL
319	F719/05	1	M	158077	Cervical	Reactive lymphadenitis	Not done
320	F743/05	10	F	151642	Cervical	Caseating TB lymphadenitis	Not done
321	F764/05	6 1/2	F	149376	Cervical	Reactive lymphadenitis	1127/05 Reactive
322	F772/05	6	F	165250	Cervical	Reactive lymphadenitis	Not done
323	F776/05	12	M	3549	Cervical	Reactive lymphadenitis	Not done
324	F796/05	8	M	1541	Cervical	Reactive lymphadenitis	Not done
325	F803/05	10	F	25108	Cervical	Caseating TB lymphadenitis	Not done
326	F806/05	10	M	1481	Cervical	Reactive lymphadenitis	Not done
327	F807/05	6	M	1539	Cervical	Reactive lymphadenitis	Not done
328	F810/05	10	M	173393	Cervical	Non specific adenitis	Not done
329	F811/05	4	M	177084	Cervical	Reactive lymphadenitis	Not done
330	F812/05	11	M	974165	Axillary	Lymphoproliferative disorder	1840/05 HL
331	F814/05	4	M	173456	Cervical	Suppurative adenitis	Not done
332	F815/05	10	M	7551	Cervical	Reactive lymphadenitis	Not done

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
333	F822/05	4	F	2221	Cervical	Reactive lymphadenitis	Not done
334	F836/05	6	M	7570	Cervical	Reactive lymphadenitis	Not done
335	F838/05	6	M	151895	Cervical	Reactive lymphadenitis	Not done
336	F890/05	1 1/2	M	7797	Cervical	Reactive lymphadenitis	Not done
337	F900/05	12	F	27256	Cervical	Suppurative lymphadenitis	Not done
338	F906/05	8	M	1698	Cervical	Reactive lymphadenitis	Not done
339	F909/05	5	M	174113	Cervical	Reactive lymphadenitis	Not done
340	F925/05	8	F	190984	Cervical	Reactive lymphadenitis	Not done
341	F927/05	4	M	192529	Cervical	Supperative lesions abscess	Not done
342	F940/05	10	M	7807	Cervical	Reactive lymphadenitis	Not done
343	F941/05	6	M	788	Cervical	Reactive lymphadenitis	Not done
344	F942/05	5	M	197776	Cervical	Supperative lesions abscess	Not done
345	F948/05	2	M	2665	Cervical	Reactive lymphadenitis	Not done
346	F961/05	4 1/2	F	184249	Submandibular	Reactive lymphadenitis	Not done
347	F967/05	6	F	8029	Cervical	Reactive lymphadenitis	Not done
348	F971/05	3	M	197936	Cervical	Reactive lymphadenitis	Not done
349	F972/05	4	F	976525	Cervical	Reactive lymphadenitis	Not done
350	F982/05	2 1/2	M	206831	Cervical	Reactive lymphadenitis	Not done
351	F984/05	6	M	1860	Cervical	Supperative adenitis	Not done
352	F1003/05	11	M	8140	Cervical	Reactive lymphadenitis	Not done
353	F1004/05	4	F	216669	Cervical	Reactive lymphadenitis	Not done
354	F1009/05	9	M	1911	Cervical	Reactive lymphadenitis	Not done
355	F1017/05	4 1/2	M	1047	Cervical	Reactive lymphadenitis	Not done
356	F1028/05	2	M	2992	Cervical	Reactive lymphadenitis	Not done
357	F1042/05	2 1/2	F	2984	Cervical	Reactive lymphadenitis	Not done
358	F1043/05	4	F	220873	Cervical	Reactive lymphadenitis	Not done
359	F1061/05	10	F	8174	Cervical	Reactive lymphadenitis	Not done
360	F1076/05	5	F	4105	Cervical	Reactive lymphadenitis	Not done
361	F1079/05	3 1/2	F	4151	Cervical	Reactive lymphadenitis	Not done
362	F1093/05	3	M	3143	Cervical	Reactive lymphadenitis	Not done
363	F1096/05	9	F	3164	Cervical	Reactive lymphadenitis	Not done
364	F1099/05	4	F	2066	Cervical	Reactive lymphadenitis	Not done
365	F1100/05	3	F	3123	Cervical	Reactive lymphadenitis	Not done
366	F1101/05	2	M	3179/05	Inguinal	Reactive lymphadenitis	Not done
367	F1103/05	6	M	7282	Cervical	Reactive lymphadenitis	Not done
368	F1112/05	9	M	234926	Cervical	Reactive lymphadenitis	Not done
369	F1124/05	6	M	3224/05	Cervical	Lympho proliferative disorder	1348/05 NHL
370	F1135/05	8	M	4290	Cervical	Reactive hyperplasia	Not done
371	F1136/05	10	M	2168	Cervical	Reactive lymphadenitis	Not done
372	F1138/05	12	M	980128	Cervical	Reactive hyperplasia	Not done
373	F1139/05	6	M	3224/05	Cervical	Lympho proliferative disorder	Not done
374	F1141/05	7	M	211571	Cervical	Reactive lymphadenitis	Not done
375	F1151/05	1 1/2	M	116/05	Cervical	Reactive lymphadenitis	Not done
376	F1190/05	6	M	4590	Cervical	Reactive lymphadenitis	Not done
377	F1194/05	7	F	4605	Cervical	Supperative adenitis	Not done
378	F1201/05	2 1/2	M	236756	Cervical	Granulomatous lymphadenitis	Not done
379	F1208/05	1 1/2	M	3501/05	Axillary	Immunoblastic lymphadenopathy	Not done
380	F1210/05	6	M	30858	Cervical	Reactive adenitis	Not done
381	F1211/05	6	F	4684	Cervical	Reactive lymphadenitis	Not done
382	F1212/05	2	M	25055	Cervical	Reactive lymphadenitis	Not done
383	F1232/05	11	F	246454	Cervical	Reactive lymphadenitis	Not done
384	F1239/05	6	M	34372	Cervical	Reactive lymphadenitis	Not done
385	F1242/05	7	F	3536/05	Cervical	Cold abscess	1612/05 Chronic granuloma
386	F1246/05	1 1/2	M	261060	Cervical	Reactive lymphadenitis	Not done
387	F1257/05	1 1/2	F	3637	Cervical	Reactive lymphadenitis	Not done
388	F1285/05	10	M	254570	Cervical	Reactive lymphadenitis	Not done

S. No.	FNAC No.	Age	Sex	IP. No.	Clinical Details	FNAC Report	Biopsy
389	F1331/05	4	M	3765/05	Cervical	Reactive lymphadenitis	Not done
390	F1343/05	5 1/2	F	4872	Cervical	Reactive lymphadenitis	Not done
391	F1348/05	7	M	274970	Cervical	Reactive lymphadenitis	Not done
392	F1349/05	11	F	274632	Cervical	Reactive lymphadenitis	Not done
393	F1350/05	10	F	274824	Cervical	Reactive lymphadenitis	Not done
394	F1351/05	7	M	4923	Cervical	Reactive lymphadenitis	Not done
395	F1355/05	6	M	276578	Cervical	Reactive lymphadenitis	Not done
396	F1356/05	2 1/2	M	982273	Cervical	Reactive lymphadenitis	Not done
397	F1364/05	8	F	26887	Cervical	Reactive lymphadenitis	Not done
398	F1369/05	10	M	5081	Cervical	Reactive lymphadenitis	Not done
399	F1373/05	1 1/2	F	40233	Cervical	Reactive lymphadenitis	Not done
400	F1376/05	3	M	279570	Cervical	Reactive lymphadenitis	Not done
401	F1400/05	10	M	279692	Cervical	Reactive lymphadenitis	Not done
402	F1402/05	4	F	2470	Cervical	Reactive lymphadenitis	Not done
403	F1414/05	10	F	2557	Cervical	Reactive lymphadenitis	Not done
404	F1417/05	10	F	5252	Cervical	Reactive lymphadenitis	Not done
405	F1421/05	2	M	279576	Cervical	Reactive lymphadenitis	Not done
406	F1434/05	11	M	286303	Axillary	Mature lymphocytes with blast cells	Not done
407	F1447/05	5	F	5438	Cervical	Reactive lymphadenitis	Not done
408	F1454/05	9	F	5717	Axillary	Reactive lymphadenitis	Not done
409	F1455/05	7	F	5318	Axillary	Reactive lymphadenitis	Not done
410	F1476/05	7	M	286185	Cervical	Polymorphous population of lymphocytes	Not done
411	F1477/05	11	F	44692	Cervical	Reactive lymphadenitis	Not done
412	F1478/05	5	F	222474	Cervical	Reactive lymphadenitis	Not done
413	F1479/05	9	F	4153/04	Inguinal	Reactive lymphadenitis	Not done
414	F1498/05	8	M	988188	Cervical	Reactive lymphadenitis	Not done
415	F1500/05	8	M	869349	Inguinal	Atypical granulomas	Not done
416	F1506/05	2	F	30091	Cervical	Reactive lymphadenitis	Not done
417	F1509/05	1	F	268939	Cervical	Polymorphous population of lymphocytes	Not done
418	F1515/05	7	M	360440	Cervical	Reactive lymphadenitis	Not done
419	F1526/05	7	F	45981	Cervical	Reactive lymphadenitis	Not done
420	F1534/05	7	M	5787	Cervical	Reactive lymphadenitis	Not done
421	F1567/05	7	M	4357	Inguinal	Non specific adenitis	Not done
422	F1572/05	6	F	5835	Cervical	Non specific adenitis	Not done
423	F1586/05	3	M	5960	Cervical	Reactive lymphadenitis	Not done
424	F1611/05	6	F	2853	Cervical	Reactive lymphadenitis	Not done
425	F1612/05	3	F	2844	Cervical	Reactive lymphadenitis	Not done
426	F1614/05	9/12	F	4452/05	Cervical	TB lymphadenitis	Not done
427	F1646/05	12	F	48905	Cervical	Reactive lymphadenitis	Not done
428	F1649/05	6 1/2	M	5930	Cervical	Scanty	Not done
429	F1657/05	5	M	6084	Cervical	Reactive lymphadenitis	Not done
430	F1691/05	5	M	45640	Cervical	Reactive lymphadenitis	Not done
431	F1692/05	6	M	65668	Cervical	Reactive lymphadenitis	Not done
432	F1701/05	6	M	342370	Inguinal	Granulomutous lymphadenitis	Not done
433	F1720/05	4	F	7088	Cervical	Reactive lymphadenitis	Not done
434	F1723/05	1 1/2	F	281199	Cervical	Reactive lymphadenitis	Not done